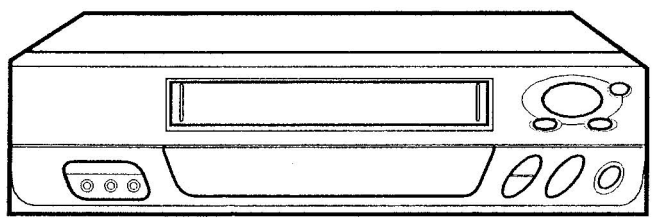
TEVION®

MD9025

SERVICE MANUAL

VIDEO CASSETTE RECORDER



VHS
PAL

ORIGINAL
CHASSIS CODE A

Design and specifications are subject to change without notice.

SERVICING NOTICES ON CHECKING

1. KEEP THE NOTICES

As for the places which need special attentions, they are indicated with the labels or seals on the cabinet, chassis and parts. Make sure to keep the indications and notices in the operation manual.

2. USE THE DESIGNATED PARTS

The parts in this equipment have the specific characters of incombustibility and withstand voltage for safety. Therefore, the part which is replaced should be used the part which has the same character.
Especially as to the important parts for safety which is indicated in the circuit diagram or the table of parts as a ⚠ mark, the designated parts must be used.

3. PUT PARTS AND WIRES IN THE ORIGINAL POSITION AFTER ASSEMBLING OR WIRING

There are parts which use the insulation material such as a tube or tape for safety, or which are assembled in the condition that these do not contact with the printed board. The inside wiring is designed not to get closer to the pyrogenic parts and high voltage parts. Therefore, put these parts in the original positions.

4. PERFORM A SAFETY CHECK AFTER SERVICING

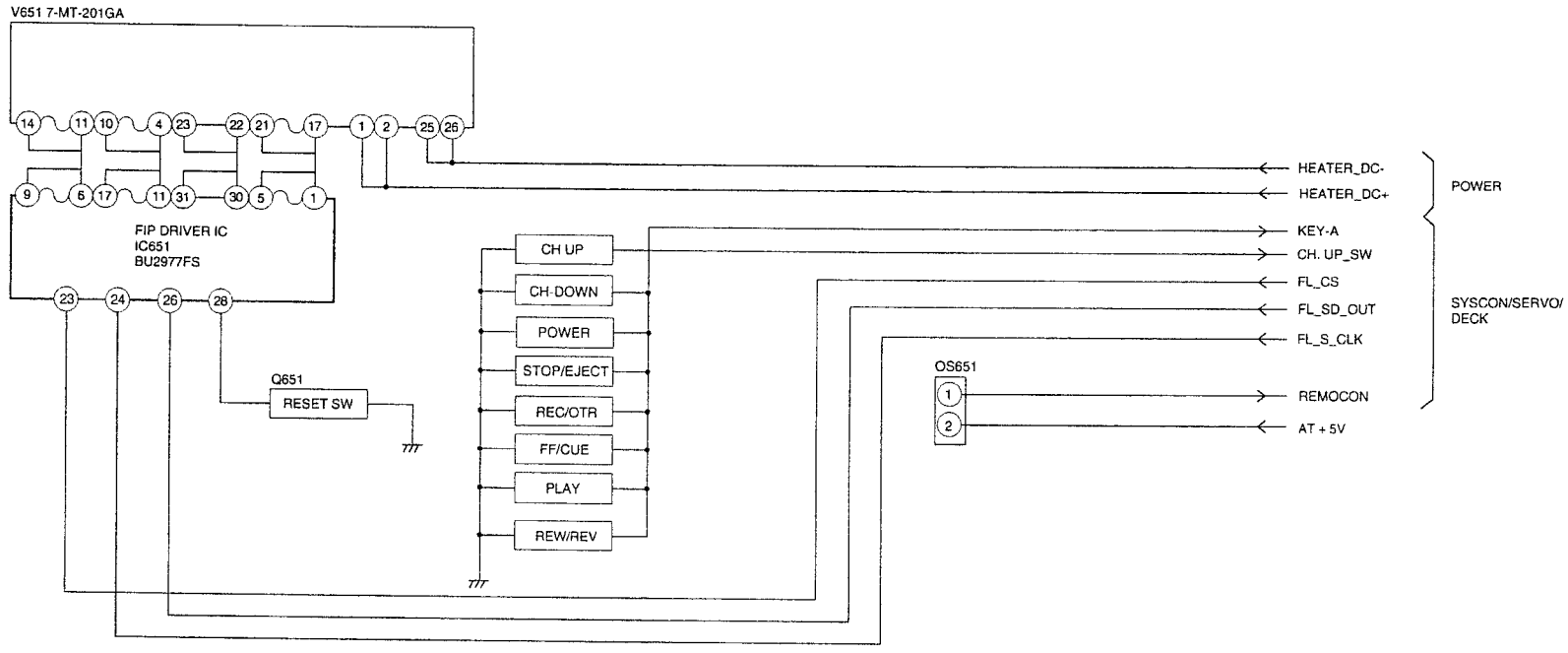
Confirm that the screws, parts and wiring which were removed in order to service are put in the original positions, or whether there are the portions which are deteriorated around the serviced places serviced or not. Check the insulation between the antenna terminal or external metal and the AC cord plug blades. And be sure the safety of that.

HOW TO ORDER PARTS

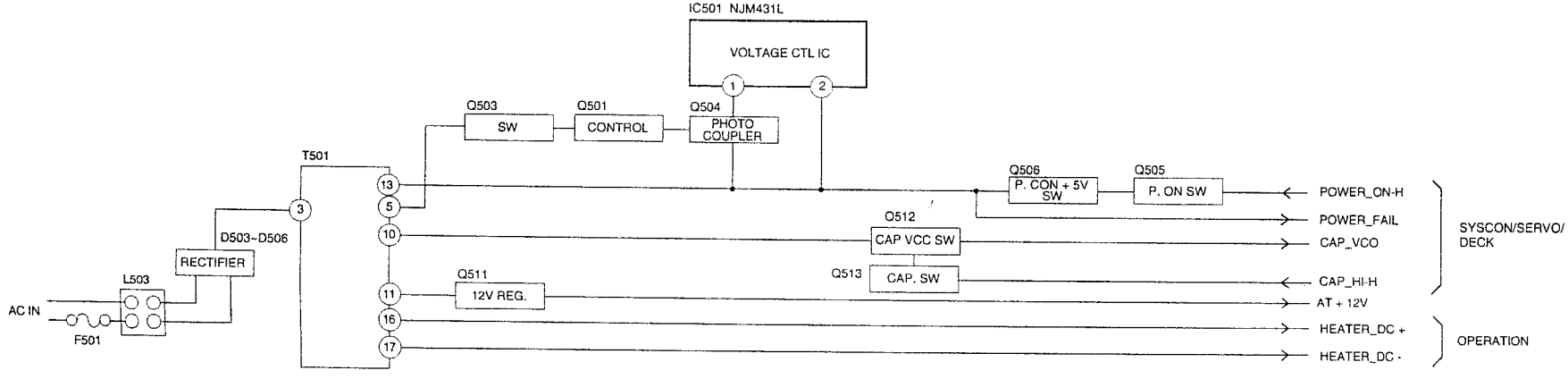
Please include the following informations when you order parts. (Particularly the CHASSIS CODE.)
1. MODEL NUMBER and CHASSIS CODE
   You can find it in the back of your unit.
2. PART NO. and DESCRIPTION
   You can find it in your SERVICE MANUAL.

BBE and the BBE symbol are trademarks of BBE Sound, Inc.

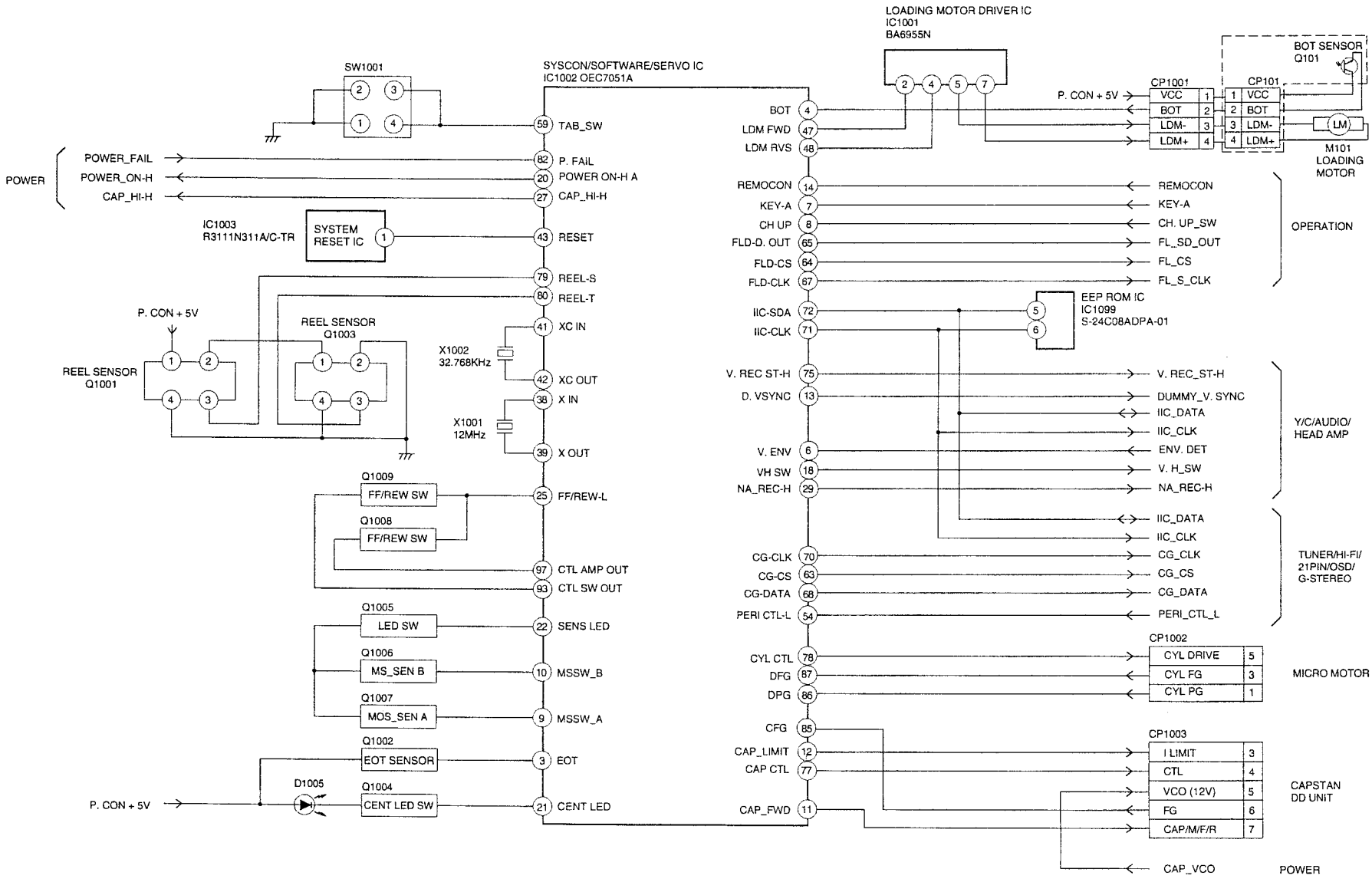
OPERATION BLOCK DIAGRAM



POWER BLOCK DIAGRAM



SYSTEM CONTROL/SERVO/DECK BLOCK DIAGRAM



CONTENTS

SERVICING NOTICES ON CHECKING A1-1
HOW TO ORDER PARTS A1-1
CONTENTS A2-1
GENERAL SPECIFICATIONS ..... A3-1~A3-6
DISASSEMBLY INSTRUCTIONS
1. REMOVAL OF MECHANICAL PARTS AND P. C. BOARDS B1-1
2. REMOVAL OF DECK PARTS ..... B2-1~B2-5
KEY TO ABBREVIATIONS C1-1, C1-2
ERROR CODE LIST C2-1
SERVICE MODE LIST C2-1
PREVENTIVE CHECKS AND SERVICE INTERVALS C3-1, C3-2
NOTE FOR THE REPLACING OF MEMORY IC C4-1
SERVICING FIXTURES AND TOOLS C5-1
PREPARATION FOR SERVICING C5-1
MECHANICAL ADJUSTMENTS ..... D1-1~D1-4
ELECTRICAL ADJUSTMENTS D2-1, D2-2
BLOCK DIAGRAMS
Y/C/AUDIO/HEAD AMP E-1, E-2
TUNER/HI-FI/21PIN/OSD/G-STEREO E-3, E-4
SYSTEM CONTROL/SERVO/DECK E-5, E-6
OPERATION/POWER E-7, E-8
PRINTED CIRCUIT BOARDS
SYSCON ..... F-1~F-4
OPERATION/DECK F-5
SCHEMATIC DIAGRAMS
Y/C/AUDIO/HEAD AMP G-1, G-2
SYSTEM CONTROL/SERVO G-3, G-4
POWER G-5, G-6
OPERATION G-7, G-8
TUNER/HI-FI G-9, G-10
21PIN/OSD G-11, G-12
G-STEREO G-13, G-14
DECK G-15, G-16
INTERCONNECTION DIAGRAM G-17, G-18
WAVEFORMS H-1
MECHANICAL EXPLODED VIEW I-1
CHASSIS EXPLODED VIEWS I-2, I-3
MECHANICAL REPLACEMENT PARTS LIST J1-1
CHASSIS REPLACEMENT PARTS LIST J2-1
ELECTRICAL REPLACEMENT PARTS LIST J3-1, J3-2

GENERAL SPECIFICATIONS

G-1.Outline of the Product

2 -Speed 1/2" Video Cassette Recorder

G-2.VCR Format

VHS Standard ☐NTSC ☒PAL ☐SECAM ☐PAL-M ☐PAL-N
☒VHS Hi-Fi Audio System

G-3.Video Recording System : Rotary, slant azimuth two head helical scan system
Luminance Component : FM recording
Chrominance Component: Low frequency converted direct recording

G-4.Broadcasting System

CCIR System B/G

G-5.Color System ☐NTSC ☒PAL ☐SECAM or Monochrome

G-6.NTSC Playback(PAL60Hz) ☒Yes ☐No

G-7.MESECAM ☐Yes ☒No

G-8.Cassette Tape

☒VHS type video cassette tape Width 12.65mm (1/2 Inch)
☐VHS-C type video cassette tape Width 12.65mm (1/2 Inch)

G-9.Tape Speed

NTSC or PAL-M		PAL or SECAM	
☒SP	33.35 mm/sec	☒SP	23.39 mm/sec
☐LP	16.67 mm/sec	☒LP	11.69 mm/sec
☐SLP	11.12 mm/sec		

G-10.Recording/Playback Time

NTSC or PAL-M(NTSC Playback Only)
☒at SP Mode Max. 210 min. (with T-210 cassette)
☐at LP Mode Max. 420 min. (with T-210 cassette)
☐at SLP Mode Max. 630 min. (with T-210 cassette)

PAL or SECAM
☒at SP Mode Max. 300 min. (with E-300 cassette)
☒at LP Mode Max. 600 min. (with E-300 cassette)

G-11.Deck

☐OVD-5 ☐OVD-6 ☒OVD-6S ☐OVD-6S(Vertical)

G-12.Rewind/Fast Forward Time(Approx.)

☒ FF: 1'30"/Rew:1'12" (with ☐T-120 cassette ☒E-180 cassette)

G-13.Search Speed

☒SP 5 and 7 Times (PAL)
☒LP 7 and 13 Times (PAL)
☒SP 3 and 5 Times (NTSC)

G-14.Slow Speed

☒SP 1/5~1/30 Times
☒LP 1/5~1/30 Times
☐SLP Times

G-15.Frame Advance

☒SP 1/10 Times
☒LP 1/10 Times
☐SLP Times

G-16.Antenna Input Impedance

VHF/UHF 75 ohm unbalanced

GENERAL SPECIFICATIONS

G-17.Tuner and Receiving Channel

Tuner: Contactless Electric Tuner

☐Oscar(W/O HYPER) ☒Oscar(W/ HYPER) ☐France CATV ☐Others

Coverage channel

E 2~E4 , X~Z+2 , S1~S10 , E5~E12 , S11~S41 , E21~E69

Tuning System

☒Frequency syn. ☐Voltage syn. ☐Others

G-18.Preset Channel

80 channels

G-19.Intermediate Frequency

Picture(FP)	38.9 MHz	_____ MHz	_____ MHz
Sound (FS)	33.4 MHz	_____ MHz	_____ MHz
FP-FS	5.5 MHz	_____ MHz	_____ MHz

G-20.RF Converter Output

Channel 36 ch. 23 ~ 69

Level/Impedance 73 dBμ / 75 ohm

Sound Selector ☐Yes(☐G ☐I ☐K) ☒No

G-21.Stereo/Dual TV Sound

☒Yes(☐NICAM ☒GERMAN ☐USA ☐JAPAN) ☐No

G-22.Tuner Sound Muting ☒Yes ☐No

G-23.Video Signal

Input Level 1 Vp-p / 75 ohm

Output Level 1 Vp-p / 75 ohm

S/N Ratio 53 dB (Weighted)

Horizontal Resolution at SP Mode 240 Lines

G-24.Audio Signal

Input Level	Microphone	- dB / -	Kohm
	Line	-3.8 dB / 50	Kohm
	RCA	-3.8 dB / 50	Kohm
Output Level	Line	-3.8 dB / 1	Kohm
	RCA	-3.8 dB / 1	Kohm(0dB=0.775 Vrms)

S/N Ratio at SP Mode 42 dB (Weighted)

Harmonic Distortion : 1.5 % (1KHz)

Frequency Response : at SP Mode 100 Hz ~ 10 KHz

at LP Mode 100 Hz ~ 5 KHz

at SLP Mode _____ Hz ~ _____ KHz

Hi-Fi Model's Spec ☐NONE

Depth Multiplex Recording Rotary, Slant Azimuth Two Head System Helical Scan System

Dynamic Range : More than 75 dB

Wow And Flutter : Less than 0.01 % Wrms

Channel Separation : More than 60 dB

Harmonic Distortion : Less than 1 %

G-25.Heads

Video	☒ 4	Rotary Heads
FM Audio	☒ 2	Rotary Heads
Audio / Control	☒ 1	Stationary Head (☒Mono ☐Stereo(L,R))
Erase	☒ 1	Full Track Erase

G-26.Motor: 3 Motors

☒Tape/Cassette Loading

☒Cylinder (Direct Drive)

☒Capstan (Direct Drive)

G-27.Power Source

230 V ☒AC 50Hz ☐AC 60Hz

GENERAL SPECIFICATIONS

G-28.Power Consumption: 14.0 W at AC 230 V 50 Hz(Approx.)
Stand by: 4.0 W at AC 230 V 50 Hz(Approx.)
Per Year: - kWh / Year

G-29.Dimensions(Approx.)

380 mm(W) 268 mm(D) 95 mm(H)

G-30.Weight(Approx.) Net : 3.5 Kg (- lbs)
Gross : 4.5 Kg (- lbs)

G-31.Cabinet Material

Cabinet Front: ☒PS ☐ABS ☒94HB ☐94V2 ☐94V0 ☐DECABROM ☐NON-DECA

G-32.Cassette Loading System: Front Cassette Loading System

G-33.Tape Counter: Linear Time Tape Counter

G-34.Protector: ☒Power Fuse ☐Dew Sensor

G-35.Regulation

Safety

☐UL	☐CSA	☐SAA	☐SI	☒CE	☐SEV
☐NEMKO	☐FEMKO	☐DEMKO	☐IEC65	☐CNS	☐SISIR
☐SEMKO	☐NZ	☐HOMOLO	☐SABS	☐GOST	
☐NOM	☐AS3159	☐DENTORI	☐UNE	☐NONE	

Radiation

☐FCC	☐DOC	☐PTT	☒CE	☐SEV
☐SABA	☐SI	☐NZ	☐HOMOLO	☐UNE
☐CNS	☐CISPR13	☐DENTORI	☐AS/NZS	☐NONE

G-36.Temperature

Operation 5 °C ~ 40 °C
Storage -20 °C ~ 60 °C

G-37.Operating Humidity : Less than 80 %RH

G-38.Clock and Timer

Calendar : 1990/1/1 ~ 2081/12/31
Built-in 1 Month 8 Events Programmable Timer
One Touch Recording : Max Time SP 5 , LP 10 Hours

G-39.Timer back up Time

More than 30 Minutes (at Power Off Mode)

G-40.Terminals

☒VHF/UHF Antenna Input/Output ☒Din Type ☐F-Type ☐France Type
☒Front Video Input<RCA ø8.3>
☒Front Audio Input<RCA ø8.3> x2
☐Rear Video Input<RCA ø8.3>
☐Rear Audio Input<RCA ø8.3>
☐Rear Video Output<RCA ø8.3>
☒Rear Audio Output<RCA ø8.3> x2
☒21 Pin (x 2)

G-41.Indicator

☐Power (_____) ☐Stand By (_____) ☐Rec (_____) ☐Repeat (_____) ☐Tape In (_____)
☐Kurupika Guide (_____) ☐One Touch Playback (_____)

GENERAL SPECIFICATIONS

G-42.Display

Fluorescent Indicator

☒Clock/Counter, Channel, Timer Rec, OTR, Play, Rec, FF(Cue), Rew(Rev), Stop, ATR, Eject ☒Pause ☒Still ☒Slow
☐WKL, Y.M.D, Start, End ☐AFT ☐Repeat ☒A - DUB
☒VCR ☐Memory ☐Index ☒VPS ☐PDC
☒SP ☒LP☐SLP ☐AM ☐PM
☒F1,F2 ☒RF-Output CH

On Screen Display

☒Menu

☒ATS
☒Timer Rec Set
☒VCR Extension ☒Auto Repeat On/Off
☒Scene Repeat
☒Audio Dubbing
☒VCR Set-Up ☐NICAM Auto/Off
☒Audio Mix On/Off
☐Color System
☒Sharpness
☒BBE On/Off
☒CH Set-Up ☒CH Tuning ☐Auto Tuning
☒CH Mapping
☒System Set-Up ☒Clock Set(☒Calendar ☐12H ☒24H)
☒Language

☒G-CODE(or SHOWVIEW or PLUSCODE)No. Entry
☐NICAM M1/2, NICAM Off, Audio Output
☒Stereo, Audio Output, Bilingual
☐Stereo, Audio Output
☒Play/Stop/FF/Rew/Rec/OTR/Pause/Tape In/Eject(Symbol Mark)
☒CH/AV ☒Clock/Date ☐Repeat
☒Tape Counter ☒Index ☐Hotel Lock ☒Tape Speed
☒Manual Tracking(Bar Setting) ☒Hi-Fi ☒S-Repeat/SR-R/SR-PLAY
☒VPS ☐PDC ☒Rec END Search

G-43.OSD Language

☒Eng ☒Ger ☒Fre ☒Spa ☒Ita ☐Por ☐Jan

OSD Language Setting

☐Eng ☒Ger ☐Fre ☐Spa ☐Ita ☐Por ☐Jan
☐Not Applicable

G-44.Carton

Master Carton: ☐Need ☒No Need
Content: ____---____ Set
Material: ____---____ / ____---____ Corrugated Carton
Dimensions: ____---____mm(W) ____---____mm(D) ____---____mm(H)
Description of Origin ☐Yes ☐No

Gift Box ☒Need(Buyer Supply) ☐No Need
Material ☐Single/Brown Corrugated Carton (☐ with Photo Label)
☐Single/White Corrugated Carton (☐ with Photo Label)
☒Single Full Color Carton W/Photo
Dimensions: ____---____mm(W) ____---____mm(D) ____---____mm(H)
Design: As Per ____---____'s
Description of Origin: ☐Yes ☐No

Drop Test Natural Dropping At 1 Corner / 3 Edges / 6 Surfaces
Height ☐25cm ☐31cm ☐46cm ☐62cm ☒80cm ☐100cm

Container Stuffing: 2,206 Sets / 40' container

GENERAL SPECIFICATIONS

G-45.Accessories

- ☒Owner's Manual (☒ W/ Guarantee Card) [German]
- ☒Remote Control Unit
- ☐Video Cassette Tape
- ☐Safety Tip
- ☐Guarantee Card
- ☐Warning Sheet
- ☐Information Sheet
- ☒75 ohm Coaxial Cable (☐Single Shield ☒Double Shield)
- ☐300 ohm to 75 ohm VHF Antenna Adaptor
- ☒21pin Cable(Buyer Supply)
- ☐Dew Caution Sheet
- ☒Battery (UM-__4__x__2__)
- ☐Toll Free Insert Sheet
- ☐Audio-Video Cord (RCA)
- ☒Quick Set-Up Sheet
- ☐U/V Mixer
- ☐Car Cord

G-46.Other Features

- ☒Auto Head Cleaning
- ☒Auto Tracking
- ☐CH Auto Set-Up/Auto Clock
- ☒VIDEO PLUS+, SHOWVIEW, G-CODE
- ☒HQ (VHS Standard High Quality)
- ☒Auto Power On, Auto Play, Auto Rewind, Auto Eject, Auto Power Off
- ☒Premiere/ Canal+
- ☒Forward / Reverse Picture Search
- ☐One Touch Playback
- ☐CATV
- ☐Auto CH Memory
- ☐Hotel Lock
- ☒Audio Dubbing
- ☒BBE Audio
- ☒Index Search
- ☒Auto Search
- ☒ATS
- ☐PDC
- ☒VPS
- ☐Channel Lock
- ☐Anti Theft
- ☐CM Skip
- ☒Remote Control Code 1/2
- ☒Rec END Search

G-47.Switch

Front

- ☒Power
- ☒Play
- ☐Pause/Still
- ☐System Select
- ☐One Touch Playback
- ☒Channel Up
- ☒F.FWD/Cue
- ☒Eject/Stop
- ☐Input Select
- ☒Channel Down
- ☒Rew/Rev
- ☒Rec/OTR
- ☐Output Select

Rear

- ☐RF-Converter Output Channel Selector(☐1 or 2CH ☐3 or 4CH)
- ☐TV/CATV Selector
- ☐SIF Selector

GENERAL SPECIFICATIONS

G-48.Remote Control

Unit: RC-DK

Glow in the Dark Remocon ☐Yes ☒No

Power Source: D.C 3 V Battery UM - 4 x 2

Total 35 Keys

☒ 0/AV	☒Ch Up/Tr Up	☒Power
☒ 1	☒Ch Down/Tr Down	☒Play/Up(☒/Slow)
☒ 2	☐/..	☒F.FWD/Right
☒ 3	☒TV/VCR	☒Rew/Left
☒ 4	☒Menu	☒Stop/Down
☒ 5	☒Enter	☒REC/OTR
☒ 6	☒Cancel/CH Skip	☒Timer Rec
☒ 7	☒Call	☒Zero Return
☒ 8	☒Speed	☒Counter Reset
☒ 9	☒Index	☒Clock/Counter
☐Deck-1	☒Eject	☒Pause(☒/Still)
☐Deck-2	☒Auto Tracking	☒END Search
☐Tape Mode	☐Audio Dubbing	☒Audio Select
☐Synchro Start	☐Output Select	☐Input Select

☒Program(☒/Video Plus+ or ShowView)

DISASSEMBLY INSTRUCTIONS

1. REMOVAL OF MECHANICAL PARTS AND P.C. BOARDS

1-1: TOP CABINET, FRONT CABINET AND OPERATION PCB (Refer to Fig. 1-1)

1. Remove the 4 screws ①.
2. Remove the Top Cabinet in the direction of arrow (A).
3. Disconnect the following connector: (CP651).
4. Unlock the 7 supports ②.
5. Remove the Front Cabinet in the direction of arrow (B).
6. Remove the 5 screws ③ and remove the Operation PCB.

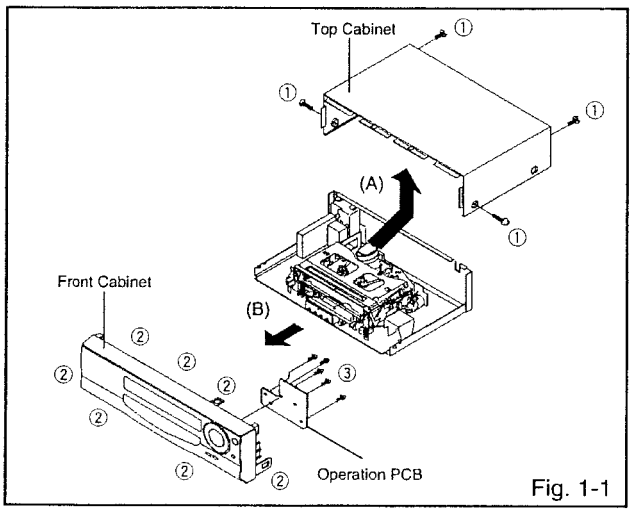


Fig. 1-1

1-2: FLAP (Refer to Fig. 1-2)

1. Open Flap to 90° and flex in direction of arrow (A), at the same time slide in direction of arrow (B).
2. Then lift in direction of arrow (C).

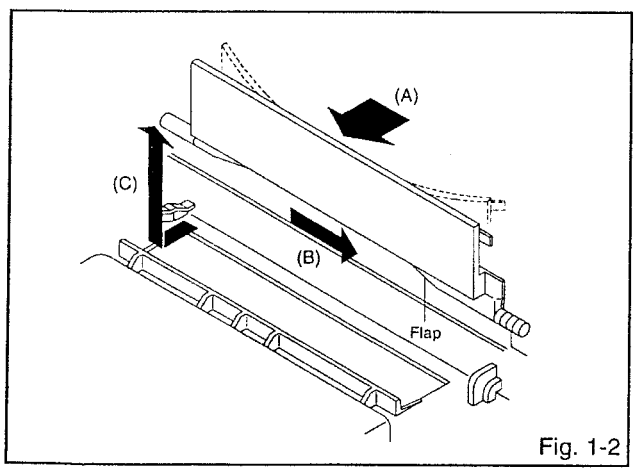


Fig. 1-2

1-3: DECK CHASSIS (Refer to Fig. 1-3)

1. Remove the 3 screws ①.
2. Remove the screw ②.
3. Disconnect the following connectors: (CP1001, CP1002, CP1003, CP4001, CP4002 and CP4003).
4. Remove the Deck Chassis in the direction of arrow.

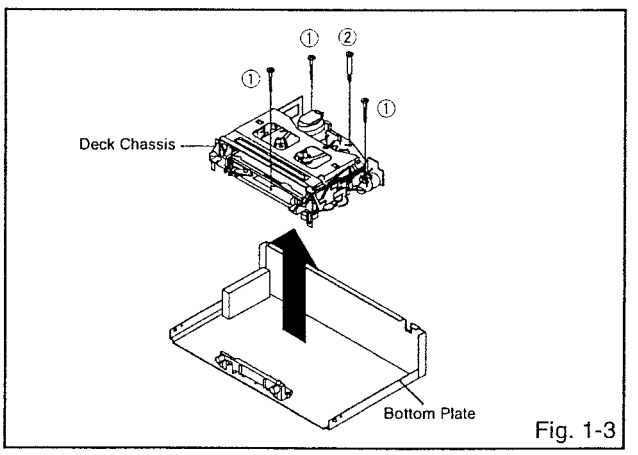


Fig. 1-3

1-4: SYSCON PCB (Refer to Fig. 1-4)

1. Remove the screw ①.
2. Remove the 2 screws ②.
3. Remove the 2 screws ③.
4. Remove the Syscon PCB in the direction of arrow.

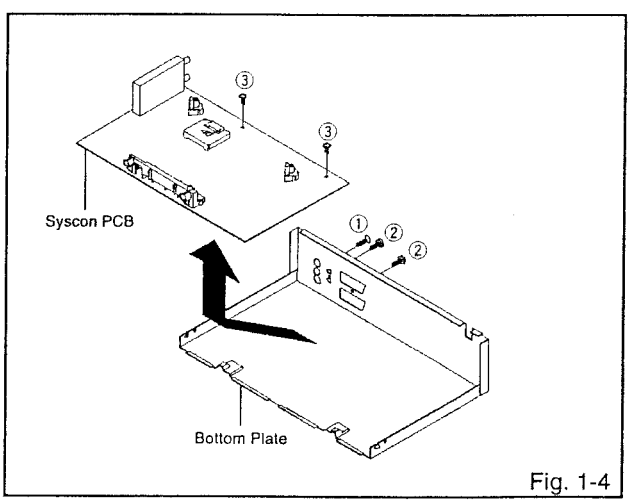


Fig. 1-4

DISASSEMBLY INSTRUCTIONS

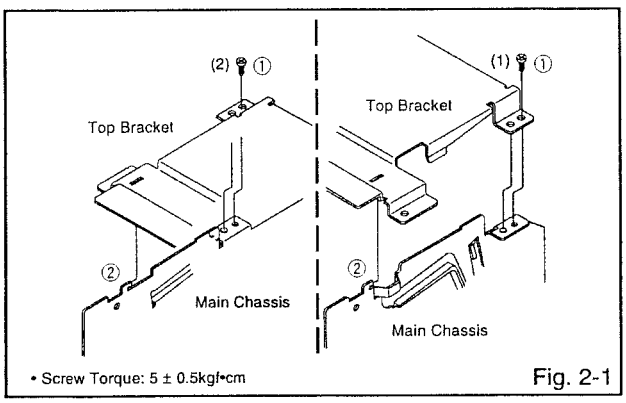
2. REMOVAL OF DECK PARTS

2-1: TOP BRACKET (Refer to Fig. 2-1)

1. Remove the 2 screws ①.
2. Slide the 2 supports ② and remove the Top Bracket.

NOTE

When you install the Top Bracket, install the screw (1) first, then install the screw (2).



• Screw Torque: 5 ± 0.5kgf•cm

Fig. 2-1

2-2: DECK COVER/FLAP LEVER/TAPE GUIDE R (Refer to Fig. 2-2)

1. Move the Cassette Holder Ass'y to the back side.
2. Unlock the support ① and remove the Deck Cover.
3. Remove the Polyslider Washer ②.
4. Remove the Flap Lever.
5. Unlock the 3 supports ③ and remove the Tape Guide R.

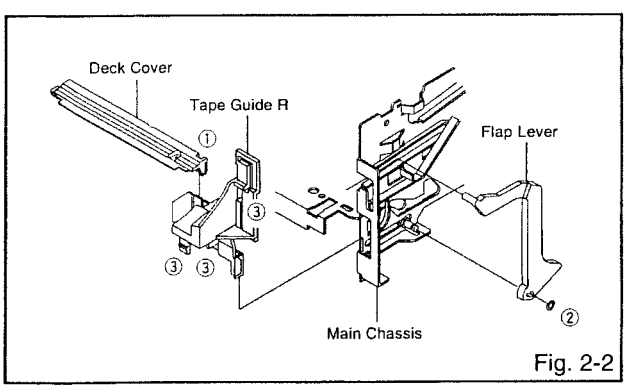
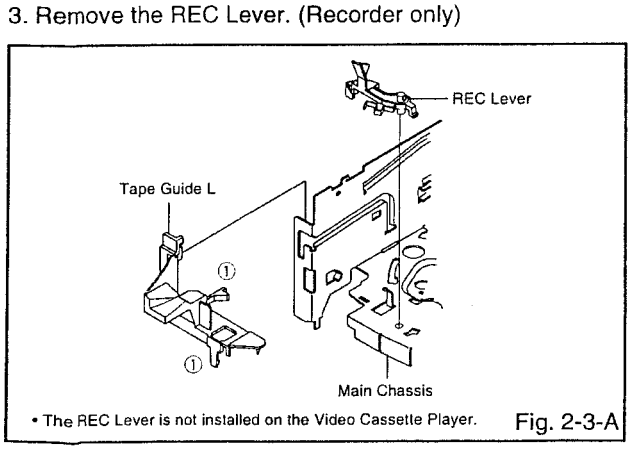


Fig. 2-2

2-3: TAPE GUIDE L (Refer to Fig. 2-3-A)

1. Move the Cassette Holder Ass'y to the back side.
2. Unlock the 2 supports ① and remove the Tape Guide L.
3. Remove the REC Lever. (Recorder only)

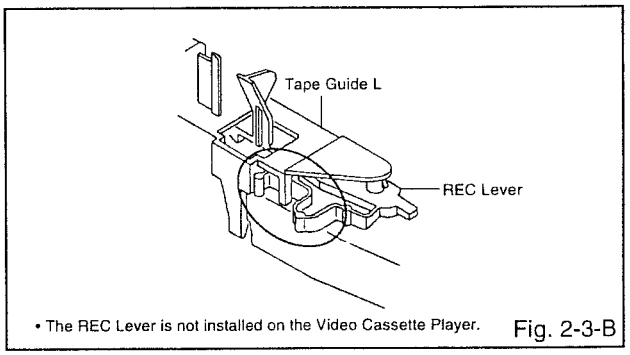


• The REC Lever is not installed on the Video Cassette Player.

Fig. 2-3-A

NOTE

When you install the Tape Guide L, install as shown in the circle of Fig. 2-3-B. **(Refer to Fig. 2-3-B)**



• The REC Lever is not installed on the Video Cassette Player.

Fig. 2-3-B

2-4: CASSETTE HOLDER ASS'Y (Refer to Fig. 2-4)

1. Move the Cassette Holder Ass'y to the front side.
2. Push the Locker R to remove the Cassette Side R.
3. Remove the Cassette Side L.

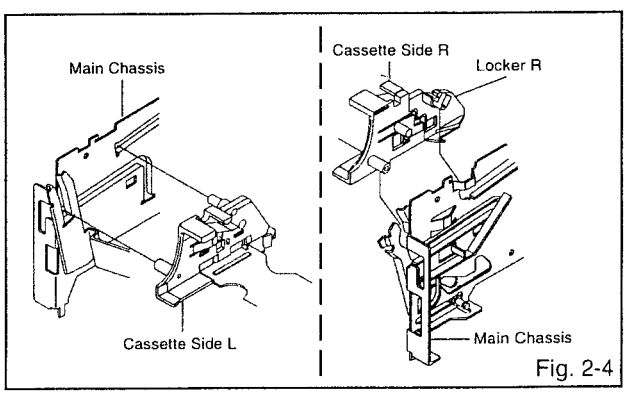


Fig. 2-4

2-5: CASSETTE SIDE L/R (Refer to Fig. 2-5)

1. Unlock the 4 supports ① and then remove the Cassette Side L/R.

NOTE

When you install the Cassette Side R, be sure to move the Locker R after installing.

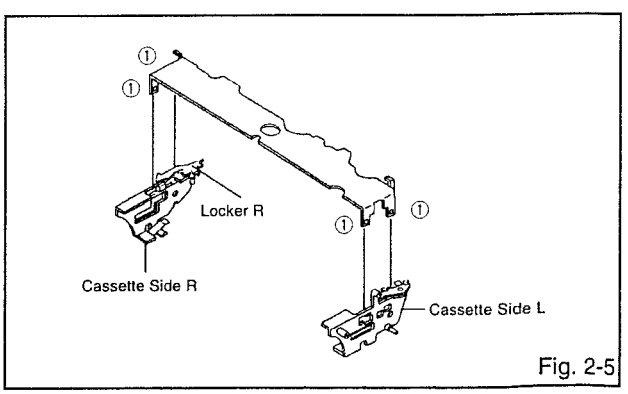


Fig. 2-5

DISASSEMBLY INSTRUCTIONS

2-6: LINK ASS'Y (Refer to Fig. 2-6)

1. Set the Link Ass'y to the Eject position.
2. Remove the (A) side of the Link Ass'y first, then remove the (B) side.

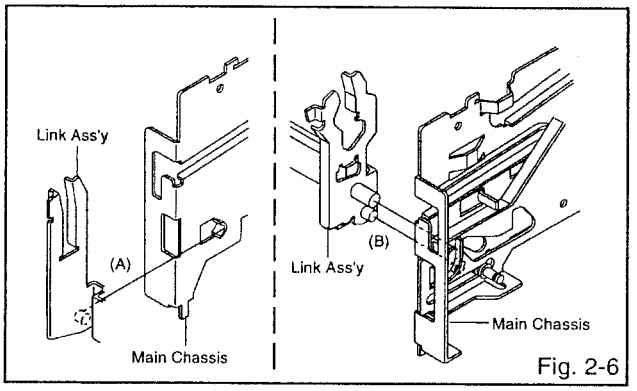


Fig. 2-6

2-7: LOADING MOTOR ASS'Y (Refer to Fig. 2-7)

1. Remove the Link Lever.
2. Remove the Dumper Spring.
3. Remove the 2 screws ①.
4. Unlock the support ② and remove the Loading Motor Ass'y.
5. Unlock the 2 supports ③ and remove the Deck PCB (BOT).

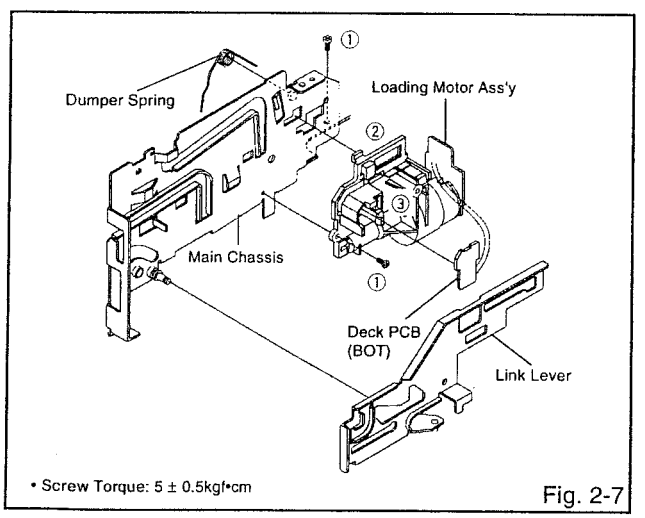


Fig. 2-7

2-8: TENSION ASS'Y (Refer to Fig. 2-8-A)

1. Move the Inclined S Ass'y to the back side.
2. Remove the Tension Spring.
3. Unlock the support ① and remove the Tension Arm Ass'y.
4. Remove the Tension Adjust.
5. Unlock the 2 supports ② and remove the Tension Band Ass'y.
6. Unlock the support ③ and remove the Tension Holder.
7. Remove the SS Brake Spring.
8. Remove the SS Arm Brake.

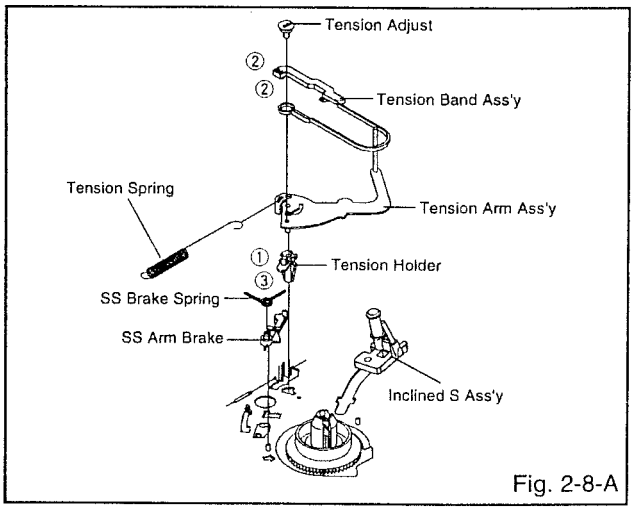


Fig. 2-8-A

NOTE

When you install the Tension Adjust, install as shown in Fig. 2-8-B. **(Refer to Fig. 2-8-B)**

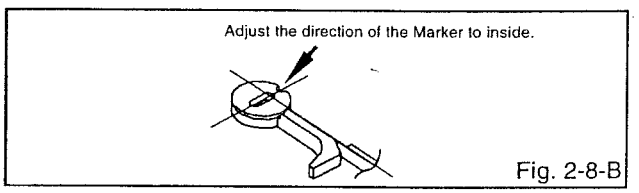


Fig. 2-8-B

2-9: T BRAKE ASS'Y (Refer to Fig. 2-9)

1. Remove the T Brake Spring.
2. Remove the T Brake Ass'y.

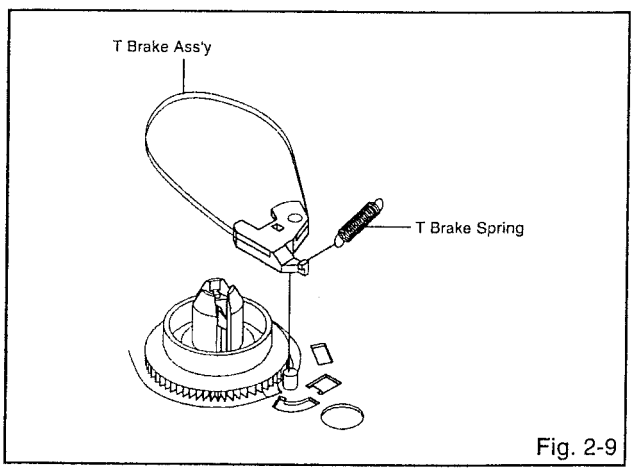


Fig. 2-9

DISASSEMBLY INSTRUCTIONS

2-10: S REEL/T REEL (Refer to Fig. 2-10)

1. Remove the S Reel and T Reel.
2. Remove the 2 Polyslider Washers ①.

NOTE

1. Take care not to damage the gears of the S Reel and T Reel.
2. The Polyslider Washer may be remained on the back of the reel.
3. Take care not to damage the shaft.
4. Do not touch the section "A" of S Reel and T Reel. (Use gloves.) **(Refer to Fig. 2-10)** Do not adhere the stains on it.
5. When you install the reel, clean the shaft and oil it (FL OIL #6115). (If you do not oil, noise may be heard in FF/REW mode.)
6. After installing the reel, adjust the height of the reel. **(Refer to MECHANICAL ADJUSTMENT)**

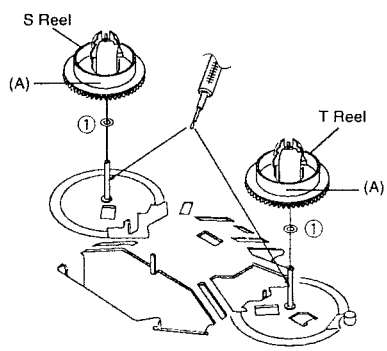
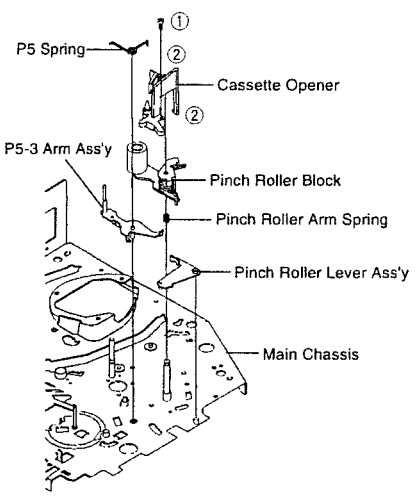


Fig. 2-10

2-11: PINCH ROLLER BLOCK/P5-3 ARM ASS'Y (Refer to Fig. 2-11-A)

1. Remove the P5 Spring.
2. Remove the screw ①.
3. Unlock the 2 supports ② and remove the Cassette Opener.
4. Remove the Pinch Roller Block, Pinch Roller Arm Spring, Pinch Roller Lever Ass'y and P5-3 Arm Ass'y.



• Screw Torque: 5 ± 0.5kgf•cm

Fig. 2-11-A

NOTE

1. Do not touch the Pinch Roller. (Use gloves.)
2. When you install the Pinch Roller Block, install as shown in the circle of Fig. 2-11-B. **(Refer to Fig. 2-11-B)**

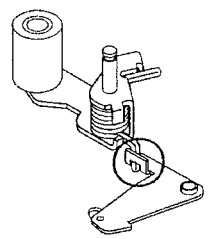


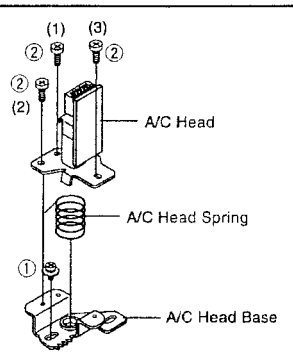
Fig. 2-11-B

2-12: A/C HEAD (Refer to Fig. 2-12-A)

1. Remove the screw ①.
2. Remove the A/C Head Base.
3. Remove the 3 screws ②.
4. Remove the A/C Head and A/C Head Spring.

NOTE

1. Do not touch the A/C Head. (Use gloves.)
2. When you install the A/C Head Spring, install as shown in Fig. 2-12-B. **(Refer to Fig. 2-12-B)**
3. When you install the A/C Head, tighten the screw (1) first, then tighten the screw (2), finally tighten the screw (3).



• Screw Torque: 4 ± 0.5kgf•cm (Screw ①)

Fig. 2-12-A

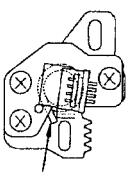
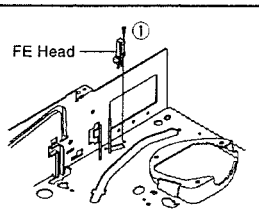

Spring Position

Fig. 2-12-B

2-13: FE HEAD (RECORDER ONLY) (Refer to Fig. 2-13)

1. Remove the screw ①.
2. Remove the FE Head.



• The FE Head is not installed on the Video Cassette Player.
• Screw Torque: 4 ± 0.5kgf•cm

Fig. 2-13

DISASSEMBLY INSTRUCTIONS

2-14: AHC ASS'Y/CYLINDER UNIT ASS'Y (Refer to Fig. 2-14)

1. Unlock the support ① and remove the AHC Ass'y.
2. Remove the 3 screws ②.
3. Remove the Cylinder Unit Ass'y.

NOTE

When you install the Cylinder Unit Ass'y, tighten the screws from (1) to (3) in order while pulling the Ass'y toward the left front direction.

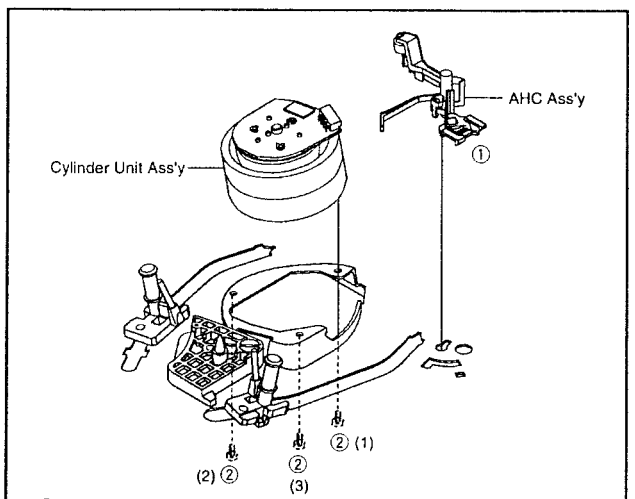


Fig. 2-14

2-15: CAPSTAN DD UNIT (Refer to Fig. 2-15)

1. Remove the Capstan Belt.
2. Remove the 3 screws ①.
3. Remove the Capstan DD Unit.

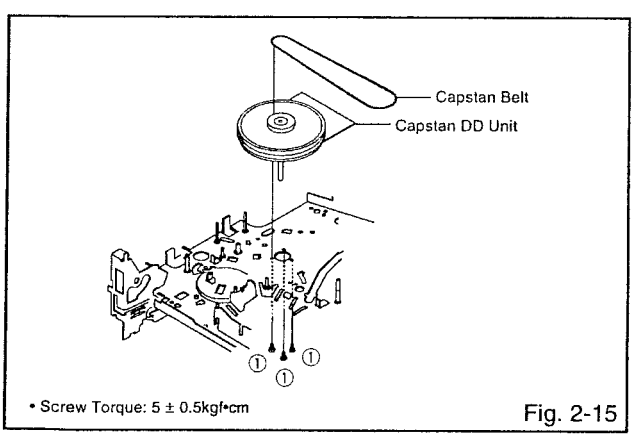


Fig. 2-15

2-16: MIDDLE GEAR/MAIN CAM (Refer to Fig. 2-16-A)

1. Remove the Polyslider Washer ①, then remove the Middle Gear.
2. Remove the E-Ring, then remove the Main Cam, P5 Cam and Pinch Roller Cam.
3. Remove the Polyslider Washer ②, then remove the Joint Gear.

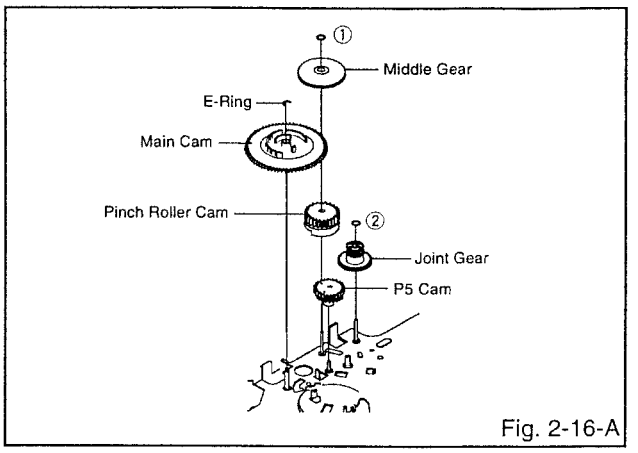


Fig. 2-16-A

NOTE

When you install the Pinch Roller Cam, P5 Cam and Main Cam, align each marker. **(Refer to Fig. 2-16-B)**

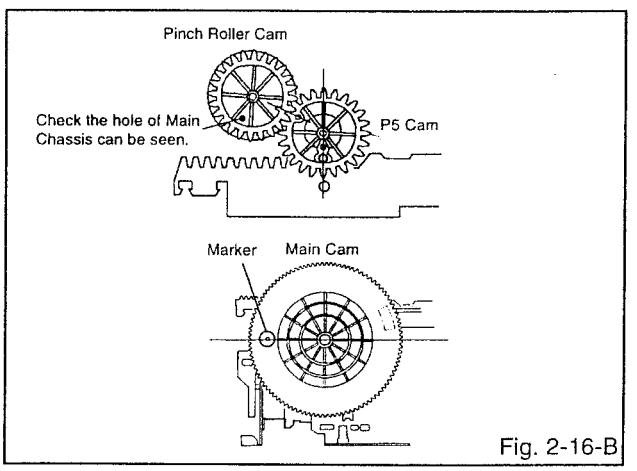


Fig. 2-16-B

2-17: CLUTCH ASS'Y (Refer to Fig. 2-17)

1. Remove the Polyslider Washer ①.
2. Remove the Clutch Ass'y, Ring Spring and Coupling Gear.
3. Unlock the 2 supports ② and remove the Clutch Lever.

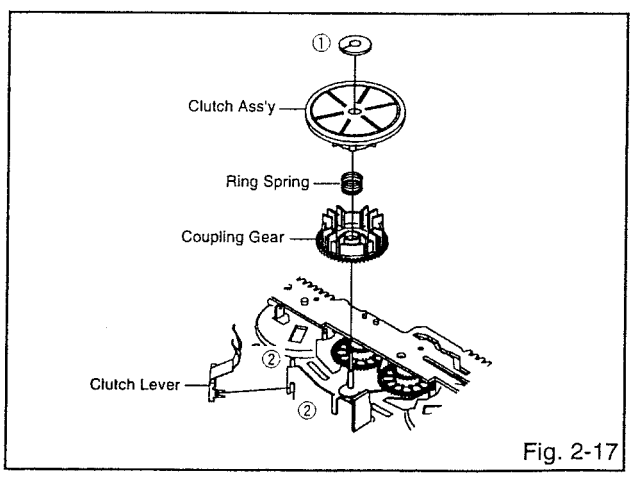


Fig. 2-17

DISASSEMBLY INSTRUCTIONS

2-18: LOADING GEAR S/T ASS'Y (Refer to Fig. 2-18-A)

1. Remove the E-Ring ① and remove the Main Loading Gear.
2. Remove the Capstan Brake Spring.
3. Slide the Main Rod and remove the Capstan Brake Ass'y.
4. Remove the Main Rod, Tension Lever, Clutch Actuator, Idler Arm Ass'y.
5. Remove the screw ②.
6. Remove the LED Reflecter.
7. Remove the Loading Arm S Ass'y and Loading Arm T Ass'y.
8. Remove the Loading Gear S and Loading Gear T.
9. Remove the Loading Gear Spring.

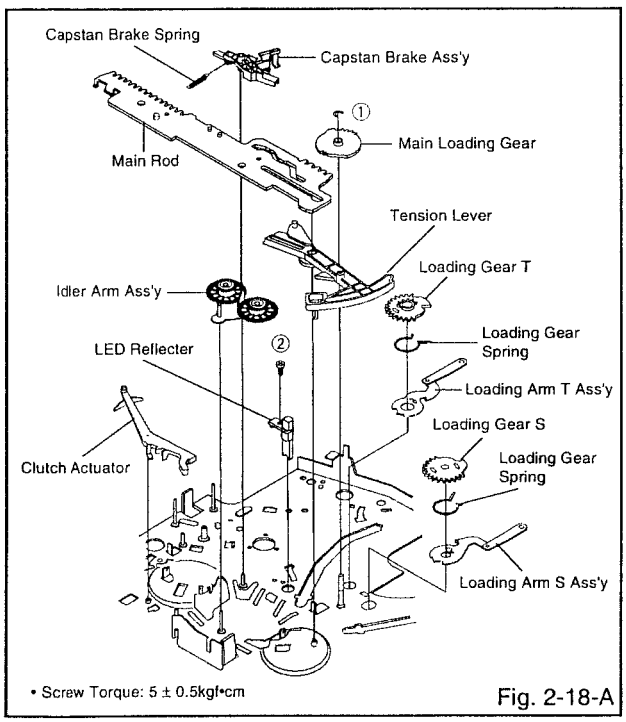


Fig. 2-18-A

NOTES

1. When you install the Loading Arm S Ass'y, Loading Arm T Ass'y and Main Loading Gear, align each marker. **(Refer to Fig. 2-18-B)**

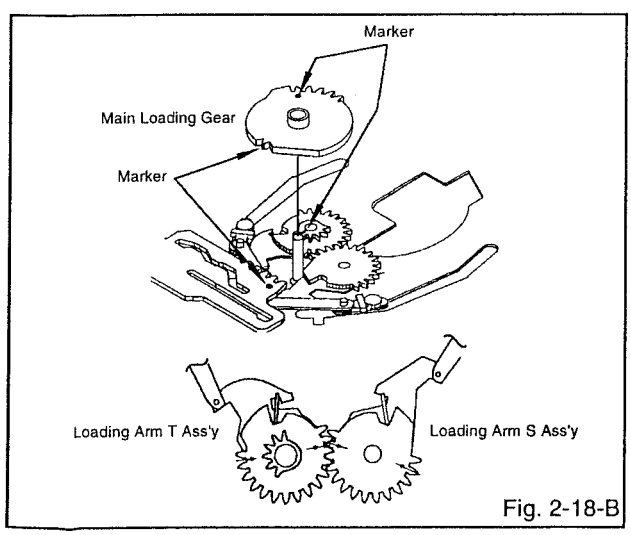


Fig. 2-18-B

2. When you install the Clutch Actuator, install as shown in the circle of Fig. 2-18-C. **(Refer to Fig. 2-18-C)**

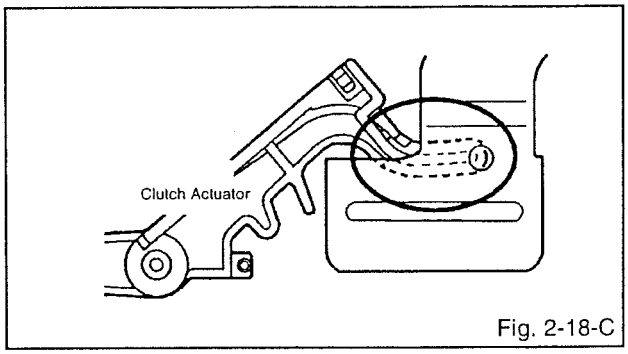


Fig. 2-18-C

2-19: INCLINED S/T ASS'Y (Refer to Fig. 2-19)

1. Unlock the support ① and remove the P4 Cover.
2. Remove the screw ②.
3. Unlock the support ③ and remove the Loading Gear Holder.
4. Remove the Inclined S.
5. Remove the Inclined T.
6. Remove the 2 screws ④, then remove the Guide Roller.

NOTE

Do not touch the roller of Guide Roller.

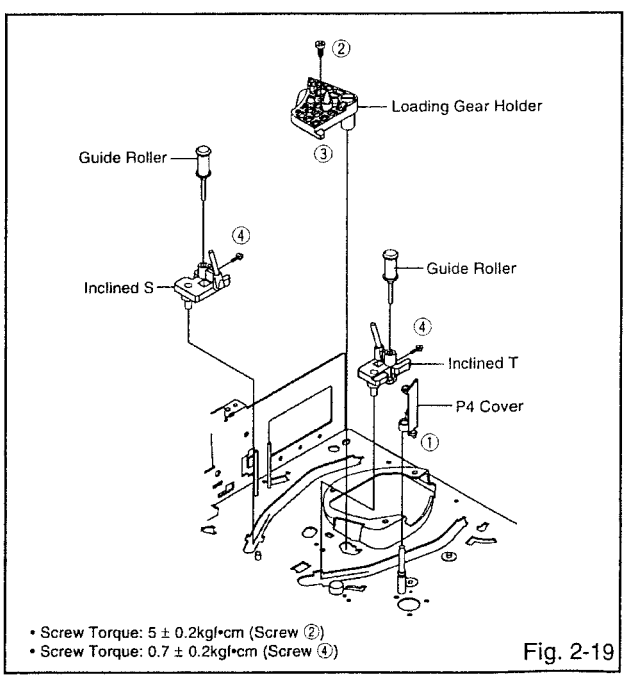


Fig. 2-19

KEY TO ABBREVIATIONS

A	A/C	:	Audio/Control
	ACC	:	Automatic Color Control
	AE	:	Audio Erase
	AFC	:	Automatic Frequency Control
	AFT	:	Automatic Fine Tuning
	AFT DET	:	Automatic Fine Tuning Detect
	AGC	:	Automatic Gain Control
	AMP	:	Amplifier
	ANT	:	Antenna
	A.PB	:	Audio Playback
	APC	:	Automatic Phase Control
	ASS'Y	:	Assembly
	AT	:	All Time
	AUTO	:	Automatic
	A/V	:	Audio/Video
B	BGP	:	Burst Gate Pulse
	BOT	:	Beginning of Tape
	BPF	:	Bandpass Filter
	BRAKE SOL	:	Brake Solenoid
	BUFF	:	Buffer
	B/W	:	Black and White
C	C	:	Capacitance, Collector
	CASE	:	Cassette
	CAP	:	Capstan
	CARR	:	Carrier
	CH	:	Channel
	CLK	:	Clock
	CLOCK (SY-SE)	:	Clock (Syscon to Servo)
	COMB	:	Combination, Comb Filter
	CONV	:	Converter
	CPM	:	Capstan Motor
	CTL	:	Control
	CYL	:	Cylinder
	CYL-M	:	Cylinder-Motor
	CYL SENS	:	Cylinder-Sensor
D	DATA (SY-CE)	:	Data (Syscon to Servo)
	dB	:	Decibel
	DC	:	Direct Current
	DD Unit	:	Direct Drive Motor Unit
	DEMOD	:	Demodulator
	DET	:	Detector
	DEV	:	Deviation
E	E	:	Emitter
	EF	:	Emitter Follower
	EMPH	:	Emphasis
	ENC	:	Encoder
	ENV	:	Envelope
	EOT	:	End of Tape
	EQ	:	Equalizer
	EXT	:	External
F	F	:	Fuse
	FBC	:	Feed Back Clamp
	FE	:	Full Erase
	FF	:	Fast Forward, Flipflop
	FG	:	Frequency Generator
	FL SW	:	Front Loading Switch
	FM	:	Frequency Modulation
	FSC	:	Frequency Sub Carrier
	FWD	:	Forward
G	GEN	:	Generator
	GND	:	Ground
H	H.P.F	:	High Pass Filter
	H.SW	:	Head Switch
	Hz	:	Hertz
I	IC	:	Integrated Circuit
	IF	:	Intermediate Frequency
	IND	:	Indicator
	INV	:	Inverter
K	KIL	:	Killer
L	L	:	Left
	LED	:	Light Emitting Diode
	LIMIT AMP	:	Limiter Amplifier
	LM, LDM	:	Loading Motor
	LP	:	Long Play
	L.P.F	:	Low Pass Filter
	LUMI.	:	Luminance
M	M	:	Motor
	MAX	:	Maximum
	MINI	:	Minimum
	MIX	:	Mixer, mixing
	MM	:	Monostable Multivibrator
	MOD	:	Modulator, Modulation
	MPX	:	Multiplexer, Multiplex
	MS SW	:	Mecha State Switch
N	NC	:	Non Connection
	NR	:	Noise Reduction
O	OSC	:	Oscillator
	OPE	:	Operation
P	PB	:	Playback
	PB CTL	:	Playback Control
	PB-C	:	Playback-Chrominance
	PB-Y	:	Playback-Luminance
	PCB	:	Printed Circuit Board
	P. CON	:	Power Control
	PD	:	Phase Detector
	PG	:	Pulse Generator
	P-P	:	Peak-to Peak
R	R	:	Right
	REC	:	Recording
	REC-C	:	Recording-Chrominance
	REC-Y	:	Recording-Luminance
	REEL BRK	:	Reel Brake
	REEL S	:	Reel Sensor
	REF	:	Reference
	REG	:	Regulated, Regulator
	REW	:	Rewind
	REV, RVS	:	Reverse
	RF	:	Radio Frequency
	RMC	:	Remote Control
	RY	:	Relay
S	S. CLK	:	Serial Clock
	S. COM	:	Sensor Common
	S. DATA	:	Serial Data
	SEG	:	Segment
	SEL	:	Select, Selector
	SENS	:	Sensor
	SER	:	Search Mode
	SI	:	Serial Input
	SIF	:	Sound Intermediate Frequency
	SO	:	Serial Output
	SOL	:	Solenoid
	SP	:	Standard Play
	STB	:	Serial Strobe
	SW	:	Switch

ERROR CODE LIST

If the error indications are appeared on the FIP, check the abnormal points by using the table below.

Indications	Error contents
Error : 00	Remocon code error
Error : 01	Reel mecha error
Error : 02	Cylinder mecha error
Error : 03	Mecha state error
Error : 04	Capstan mecha error

SERVICE MODE LIST

This unit provided with the following SERVICE MODES so you can repair, examine and adjust easily.

Method	Operations
Press both PLAY button and CH UP button on the set for more than 2 seconds.	Initialization of the factory. NOTE: Do not use this for the normal servicing.
While pressing the CH UP key on the set, press the FF key on the set for more than 2 seconds.	PLAY/REC total hours are displayed on the FIP. Refer to the "PREVENTIVE CHECKS AND SERVICE INTERVALS" (CONFIRMATION OF USING HOURS). Can be checked of the INITIAL DATA of MEMORY IC. Refer to the "NOTE FOR THE REPLACING OF MEMORY IC".
Press the ATR button on the remote control for more than 2 seconds during PLAY.	Adjusting of the Tracking to the center position. Refer to the "MECHANICAL ADJUSTMENT" (GUIDE ROLLER) and "ELECTRICAL ADJUSTMENT" (PG SHIFTER).
While pressing the CH UP button on the set, press the STOP button on the set for more than 2 seconds during PLAY.	Adjust the PG SHIFTER automatically. Refer to the "ELECTRICAL ADJUSTMENT" (PG SHIFTER).
Make the short circuit between the test point of SERVICE and the GND.	The EOT/BOT/Reel sensor do not work at this moment. Refer to the "PREPARATION FOR SERVICING"

KEY TO ABBREVIATIONS

S	**SYNC**	:	Synchronization
	SYNC SEP	:	Sync Separator, Separation
T	**TR**	:	Transistor
	TRAC	:	Tracking
	TRICK PB	:	Trick Playback
	TP	:	Test Point
U	**UNREG**	:	Unregulated
V	**V**	:	Volt
	VCO	:	Voltage Controlled Oscillator
	VIF	:	Video Intermediate Frequency
	VP	:	Vertical Pulse, Voltage Display
	V.PB	:	Video Playback
	VR	:	Variable Resistor
	V.REC	:	Video Recording
	VSF	:	Visual Search Fast Forward
	VSR	:	Visual Search Rewind
	VSS	:	Voltage Super Source
	V-SYNC	:	Vertical-Synchronization
	VT	:	Voltage Tuning
X	**X'TAL**	:	Crystal
Y	**Y/C**	:	Luminance/Chrominance

PREVENTIVE CHECKS AND SERVICE INTERVALS

The following standard table depends on environmental conditions and usage. Unless maintenance is properly carried out, the following service intervals may be quite shortened as harmful effects may be had on other parts. Also, long term storage or misuse may cause transformation and aging of rubber parts.

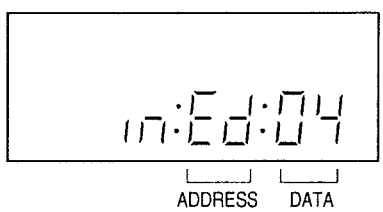
Time / Parts Name	500 hours	1,000 hours	1,500 hours	2,000 hours	3,000 hours	Notes
Audio Control Head	■	■	■	■	■	Clean those parts in contact with the tape.
Full Erase Head (Recorder only)	■	■	■	■	■	
Capstan Belt			■	■	●	Clean the rubber, and parts which the rubber touches.
Pinch Roller	■	■	■	■	■ ●	
Capstan DD Unit					●	
Loading Motor					●	
Tension Band					●	
Capstan Shaft	■	■	■	■	■	
Tape Running Guide Post	■	■	■	■	■	Replace when rolling becomes abnormal.
Cylinder Unit	■	■	■	■	●	Clean the Head

■ : Clean
● : Replace

CONFIRMATION OF USING HOURS

PLAY/REC total hours can be checked on the FIP.
Total hours are displayed in 16 system of notation.

1. Turn on the POWER.
2. While pressing the CH UP button on the set, press the FF button on the set for more than 2 seconds.
3. Adjust the ADDRESS to "FD" by FF or REW button and read the DATA.
   (This DATA becomes the thousands digit and hundreds digit value of the following formula.)
4. Adjust the ADDRESS to "FE" by FF or REW button and read the DATA.
   (This DATA becomes the tens digit and ones digit value of the following formula.)
5. After the confirmation of using hours, turn off the power.



(16 x 16 x 16 x thousands digit value) + (16 x 16 x hundreds digit value) + (16 x tens digit value) + (ones digit value)

PREVENTIVE CHECKS AND SERVICE INTERVALS

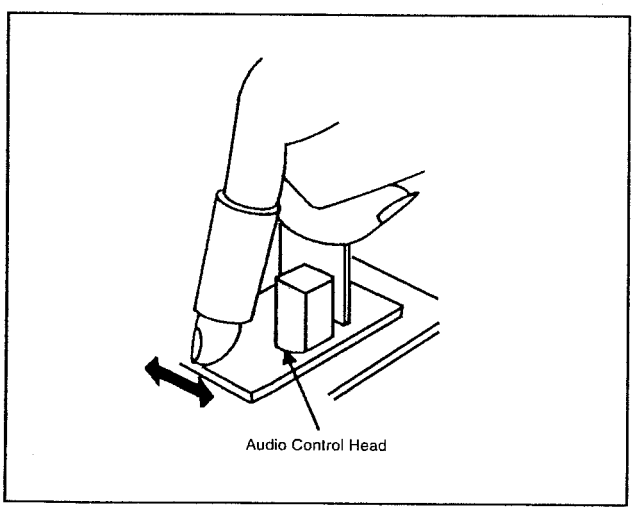
CLEANING

NOTE

After cleaning the heads with isopropyl alcohol, do not run a tape until the heads dry completely. If the heads are not completely dry and alcohol gets on the tape, damage may occur.

1. AUDIO CONTROL HEAD

Wrap a piece of chamois around your finger. Dip it in isopropyl alcohol and clean the audio control head by wiping it horizontally. Clean the full erase head in the same manner. **(Refer to the figure below.)**



2. TAPE RUNNING SYSTEM

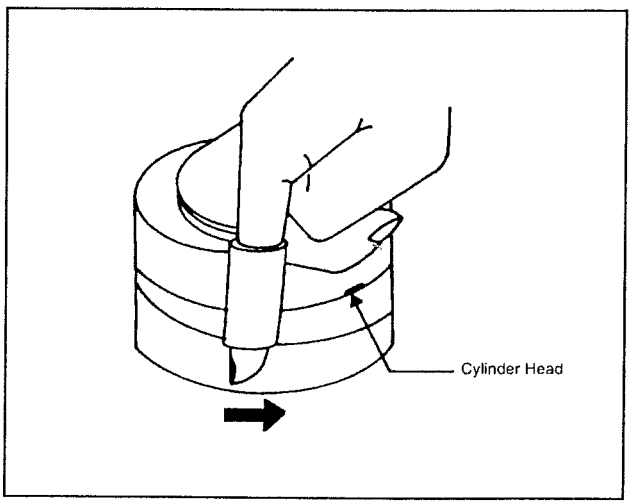
When cleaning the tape transport system, use the gauze moistened with isopropyl alcohol.

3. CYLINDER

Wrap a piece of chamois around your finger. Dip it in isopropyl alcohol. Hold it to the cylinder head softly. Turn the cylinder head counterclockwise to clean it (in the direction of the arrow). **(Refer to the figure below.)**

NOTE

Do not exert force against the cylinder head. Do not move the chamois upward or downward on the head.
Use the chamois one by one.



NOTE FOR THE REPLACING OF MEMORY IC

If a service repair is undertaken where it has been required to change the MEMORY IC, the following steps should be taken to ensure correct data settings while making reference to TABLE 1.

ADDRESS	DATA	ADDRESS	DATA	ADDRESS	DATA	ADDRESS	DATA	ADDRESS	DATA	ADDRESS	DATA
C2	00	CC	21	D6	00	E0	76	EA	00	F4	41
C3	00	CD	15	D7	00	E1	5E	EB	5F	F5	00
C4	00	CE	0A	D8	F9	E2	08	EC	09	F6	00
C5	F1	CF	8A	D9	9F	E3	F0	ED	F0	F7	00
C6	44	D0	AA	DA	82	E4	01	EE	0A	F8	00
C7	51	D1	EA	DB	0A	E5	F3	EF	F3	F9	00
C8	00	D2	06	DC	42	E6	00	F0	50	FA	04
C9	51	D3	02	DD	35	E7	00	F1	2F	FB	00
CA	6C	D4	02	DE	A3	E8	00	F2	DF	FC	90
CB	2B	D5	03	DF	56	E9	00	F3	41		

Table 1

1. Turn on the POWER.
2. While pressing the CH UP button on the set, press the FF button on the set for more than 2 seconds. ADDRESS and DATA should appear FIG 1.

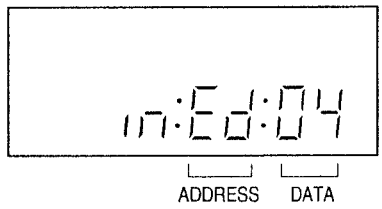
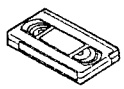
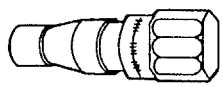
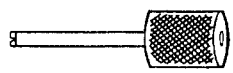
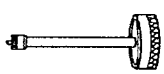
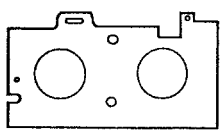
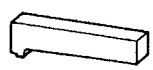
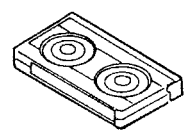
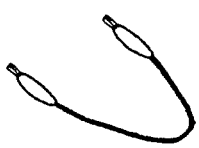
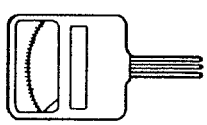


Fig. 1

3. ADDRESS is now selected and should "blink". Using the FF or REW button on the remote, step through the ADDRESS until required ADDRESS to be changed is reached.
4. Press ENTER to select DATA. When DATA is selected, it will "blink".
5. Again, step through the DATA using FF or REW button until required DATA value has been selected.
6. Pressing ENTER will take you back to ADDRESS for further selection if necessary.
7. Repeat steps 3 to 6 until all data has been checked.
8. When satisfied correct DATA has been entered, turn POWER off (return to STANDBY MODE) to finish DATA input.

The unit will now have the correct DATA for the new MEMORY IC.

SERVICING FIXTURES AND TOOLS

(For 2 head 1 speed model, 4 head model) VHS Alignment Tape JG001E (VP_1S-LI6^3) JG001F (VP_1S-CO1^3) JG001R (VP_1S-LI6^{3}H) JG001U (VP_1S-X6^3) 	**(For 2 head 2 speed model)** VHS Alignment Tape JG001C (VP_2S-LI6^3) JG001D (VP_2S-CO1^3) JG001V (VP_2S-X6^3) 	JG002B Adapter JG002E Dial Torque Gauge (10~90gf•cm) JG002F (60~600gf•cm) 	JG005 Post Adjustment Screwdriver Part No. SV-TG0-030-000 (small) 
JG153 X Value Adjustment Screwdriver 	JG022 Master Plane 	JG024A Reel Disk Height Adjustment Jig 	JG100A Torque Tape (VHT-063) 
JG154 Cable 	Tentelometer 		

Part No.	Remarks
JG001E	Monoscope, 6KHz **(For 2 head 1 speed model, 4 head model)**
JG001F	Color Bar, 1KHz **(For 2 head 1 speed model, 4 head model)**
JG001R	Hi-Fi Audio **(For Hi-Fi model)**
JG001U	X Value Adjustment **(For 2 head 1 speed model, 4 head model)**
JG001C	Monoscope, 6KHz **(For 2 head 2 speed model)**
JG001D	Color Bar, 1KHz **(For 2 head 2 speed model)**
JG001V	X Value Adjustment **(For 2 head 2 speed model)**
JG002B	VSR Torque, Brake Torque (S Reel/T Reel Ass'y)
JG002E	Brake Torque (T Reel Ass'y)
JG002F	VSR Torque, Brake Torque (S Reel)
JG005	Guide Roller Adjustment
JG153	X Value Adjustment
JG022/JG024A	Reel Disk Height Adjustment
JG100A	Playback Torque, Back Tension Torque During Playback
JG154	Used to connect the test point of SERVICE and GROUND

PREPARATION FOR SERVICING

How to use the Servicing Fixture

1. Short circuit between **TP1001** and **TP1002** with the cable JG154.
   (Refer to ELECTRICAL ADJUSTMENT PARTS LOCATION GUIDE)
   The EOT, BOT and Reel Sensor do not work at this moment.
   At that time, the STOP/EJECT button is available to insert and eject the Cassette Tape.

MECHANICAL ADJUSTMENTS

1. CONFIRMATION AND ADJUSTMENT

Read the following NOTES before starting work.

- Place an object which weighs between 450g~500g on the Cassette Tape to keep it steady when you want to make the tape run without the Cassette Holder. (Do not place an object which weighs over 500g.)
- When you activate the deck without the Cassette Holder, short circuit between **TP1001** and **TP1002. (Refer to ELECTRICAL ADJUSTMENT PARTS LOCATION GUIDE)** In this condition the BOT/EOT/Reel Sensor will not function.

1-1: CONFIRMATION AND ADJUSTMENT OF REEL DISK HEIGHT

1. Turn on the power and set to the STOP mode.
2. Set the master plane **(JG022)** and reel disk height adjustment jig **(JG024A)** on the mechanism framework, taking care not to scratch the drum, as shown in **Fig. 1-1-A.**
3. Confirm that "A" of the reel disk is lower than "B" of the reel disk height adjustment jig **(JG024A)** , and is higher than "C". If it is not enough height, adjust to 10(+0.2, -0) mm with the height adjustment washer.
4. Adjust the other reel in the same way.

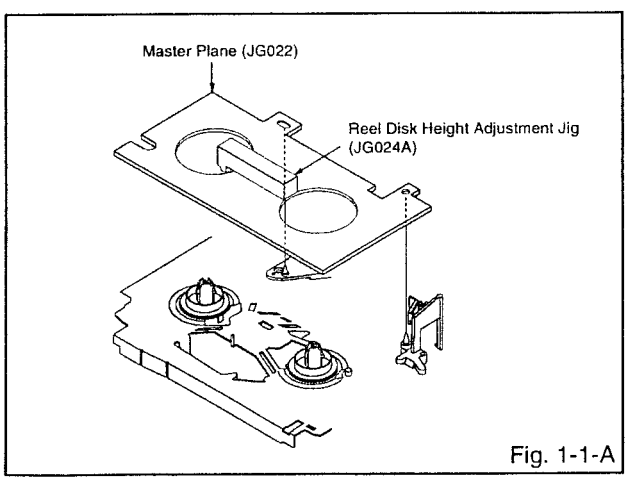


Fig. 1-1-A

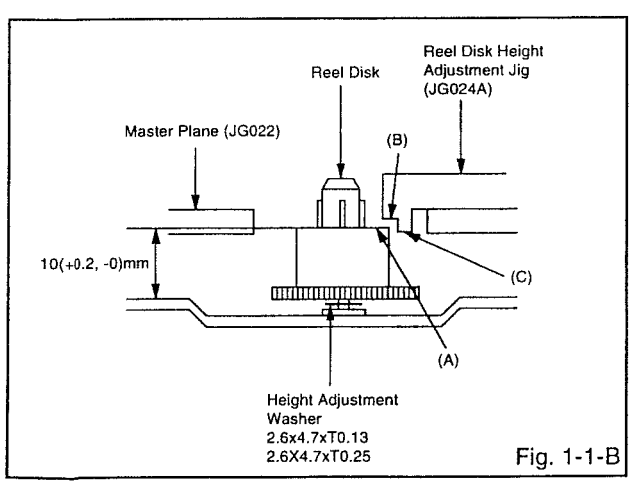


Fig. 1-1-B

1-2: CONFIRMATION AND ADJUSTMENT OF TENSION POST POSITION

1. Set to the PLAY mode.
2. Adjust the Tension Adjust until the edge of the Tension Arm is positioning within 0.5mm range from the standard line center of Main Chassis.
   After this adjustment, confirm that the cut position is located in "A" area as shown in **Fig. 1-2-B**. If it is located in "B" area, adjust again.
3. While turning the S Reel clockwise, confirm that the edge of the Tension Arm is located in the position described above.

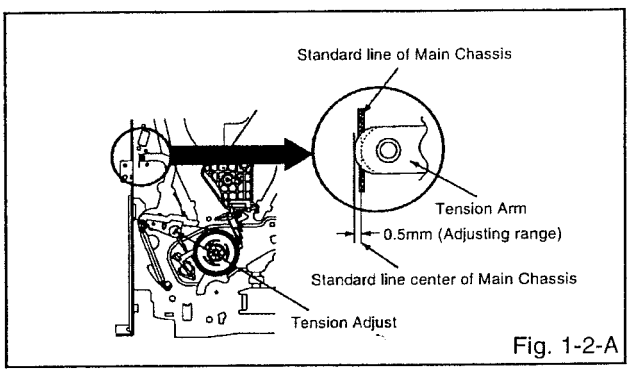


Fig. 1-2-A

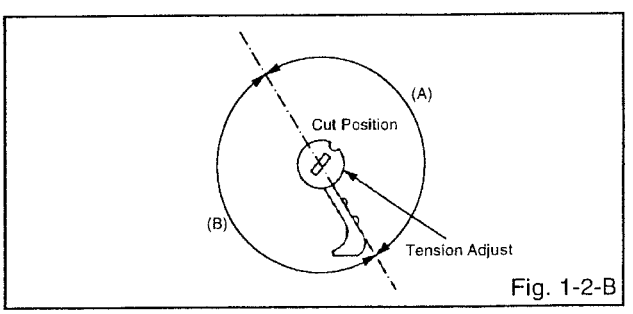


Fig. 1-2-B

1-3: CONFIRMATION OF PLAYBACK TORQUE AND BACK TENSION TORQUE DURING PLAYBACK

1. Load a video tape (E-180) recorded in standard speed mode. Set the unit to the PLAY mode.
2. Install the tentelometer as shown in **Fig. 1-3**. Confirm that the meter indicates 20 ± 2gf in the beginning of playback.

• USING A CASSETTE TYPE TORQUE TAPE **(JG100A)**

1. After confirmation and adjustment of Tension Post position **(Refer to item 1-2)**, load the cassette type torque tape **(JG100A)** and set to the PLAY mode.
2. Confirm that the right meter of the torque tape indicates 60~110gf•cm during playback in SP mode.
3. Confirm that the left meter of the torque tape indicates 25~40gf•cm during playback in SP mode.

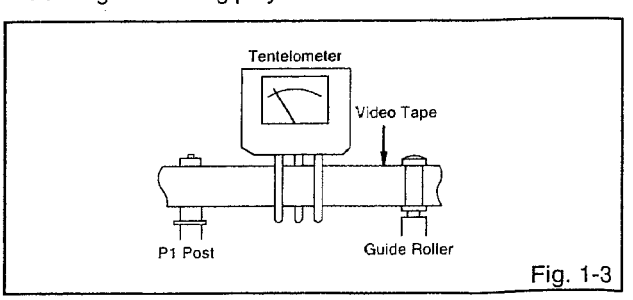


Fig. 1-3

MECHANICAL ADJUSTMENTS

1-4: CONFIRMATION OF VSR TORQUE

1. Operate within 4~5 seconds after the reel disk begins to turn.
2. Install the Torque Gauge **(JG002F)** and Adapter **(JG002B)** on the S Reel. Set to the Rewind mode. **(Refer to Fig.1-4)**
3. Then, confirm that it indicates 120~180gf•cm.

NOTE

Install the Torque Gauge on the reel disk firmly. Press the REW button to turn the reel disk.

1-5: CONFIRMATION OF REEL BRAKE TORQUE

(S Reel Brake) **(Refer to Fig. 1-4)**

1. Set to the STOP mode.
2. Move the Idler Ass'y from the S Reel.
3. Install the Torque Gauge **(JG002F)** and Adapter **(JG002B)** on the S Reel. Turn the Torque Gauge **(JG002F)** clockwise.
4. Then, confirm that it indicates 60~100gf•cm.

(T Reel Brake) **(Refer to Fig. 1-4)**

1. Set to the STOP mode.
2. Move the Idler Ass'y from the T Reel.
3. Install the Torque Gauge **(JG002E)** and Adapter **(JG002B)** on the T reel. Turn the Torque Gauge **(JG002E)** counterclockwise.
4. Then, confirm that it indicates 45~70gf•cm.

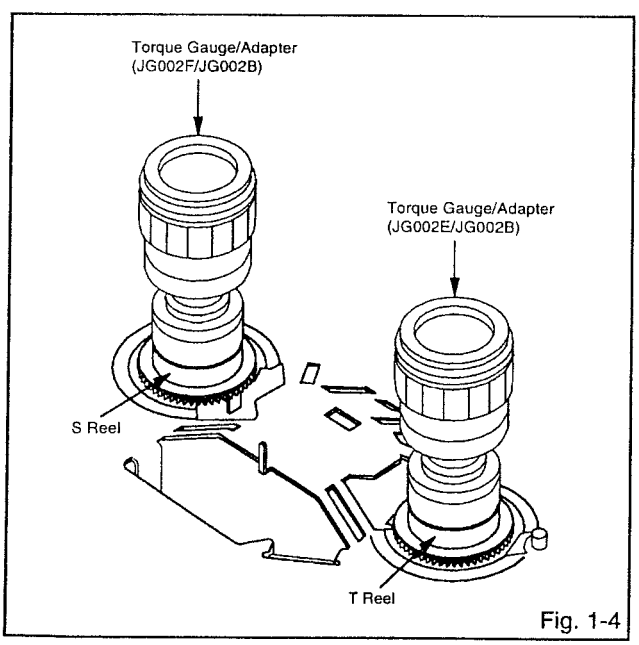


Fig. 1-4

NOTE

If the torque is out of the range, replace the following parts.

Check item	Replacement Part
1-4	Idler Ass'y/Clutch Ass'y
1-5	T Brake Spring/Tension Spring

2. CONFIRMATION AND ADJUSTMENT OF TAPE RUNNING MECHANISM

Tape Running Mechanism is adjusted precisely at the factory. Adjustment is not necessary as usual. When you replace the parts of the tape running mechanism because of long term usage or failure, the confirmation and adjustment are necessary.

2-1: GUIDE ROLLER

1. Playback the VHS Alignment Tape **(JG001C or JG001E)**. **(Refer to SERVICING FIXTURE AND TOOLS)**
2. Connect CH-1 of the oscilloscope to **TP4002 (Envelope)** and CH-2 to **TP4001 (SW Pulse)**.
3. Press and hold the Tracking-Auto button on the remote control more than 2 seconds to set tracking to center.
4. Trigger with SW Pulse and observe the envelope. **(Refer to Fig. 2-1-A)**
5. When observing the envelope, adjust the Adjusting Driver **(JG005)** slightly until the envelope will be flat. Even if you press the Tracking Button, adjust so that flatness is not moved so much.
6. Adjust so that the A : B ratio is better than 3 : 2 as shown in **Fig. 2-1-B**, even if you press the Tracking Button to move the envelope (The envelope waveform will begin to decrease when you press the Tracking Button).
7. Adjust the PG shifter during playback. **(Refer to the ELECTRICAL ADJUSTMENTS)**

NOTE

After adjustment, confirm and adjust A/C head. **(Refer to item 2-2)**

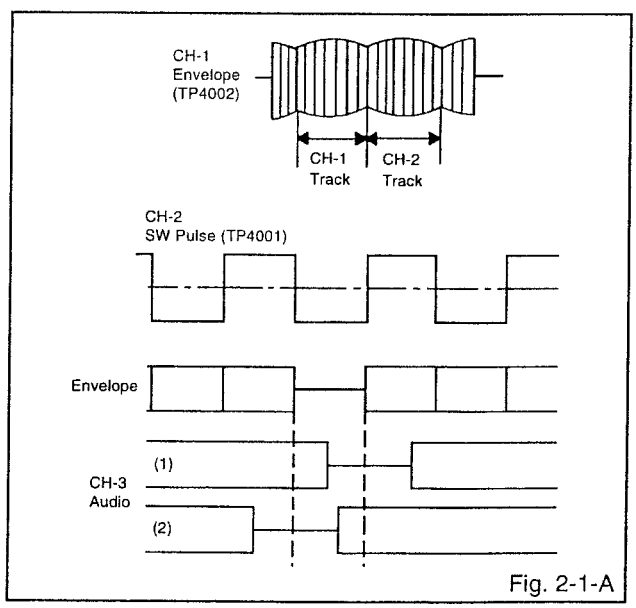


Fig. 2-1-A

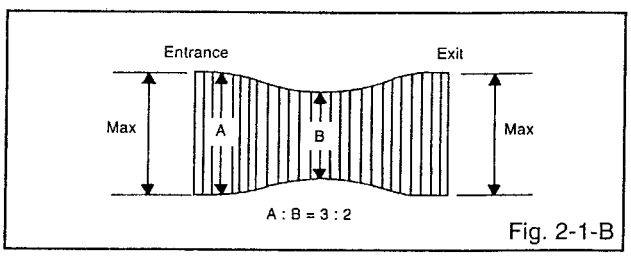


Fig. 2-1-B

MECHANICAL ADJUSTMENTS

2-2: CONFIRMATION AND ADJUSTMENT OF AUDIO/ CONTROL HEAD

When the Tape Running Mechanism does not work well, adjust the following items.

1. Playback the VHS Alignment Tape **(JG001C or JG001E)**. **(Refer to SERVICING FIXTURE AND TOOLS)**
2. Confirm that the reflected picture of stamp mark is appeared on the tape prior to P4 Post as shown in **Fig. 2-2-A**.
   a) When the reflected picture is distorted, turn the screw ① clockwise until the distortion is disappeared.
   b) When the reflected picture is not distorted, turn the screw ① counterclockwise until little distortion is appeared, then adjust the a).
3. Turn the screw ② to set the audio level to maximum.
4. Confirm that the bottom of the Audio/ Control Head and the bottom of the tape is shown in **Fig. 2-2-C**.
   c) When the height is not correct, turn the screw ③ to adjust the height. Then, adjust the 1~3 again.

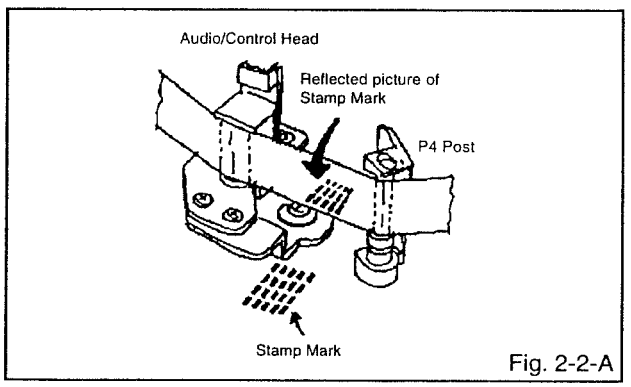


Fig. 2-2-A

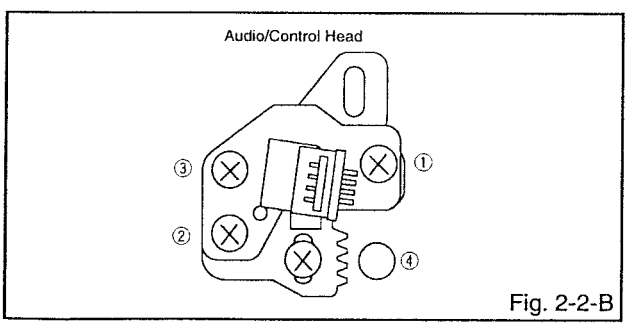


Fig. 2-2-B

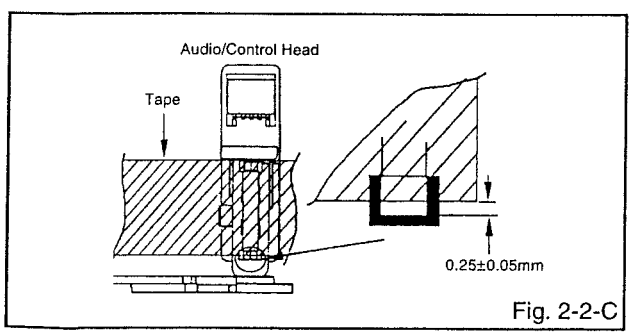


Fig. 2-2-C

2-3: TAPE RUNNING ADJUSTMENT (X VALUE ADJUSTMENT)

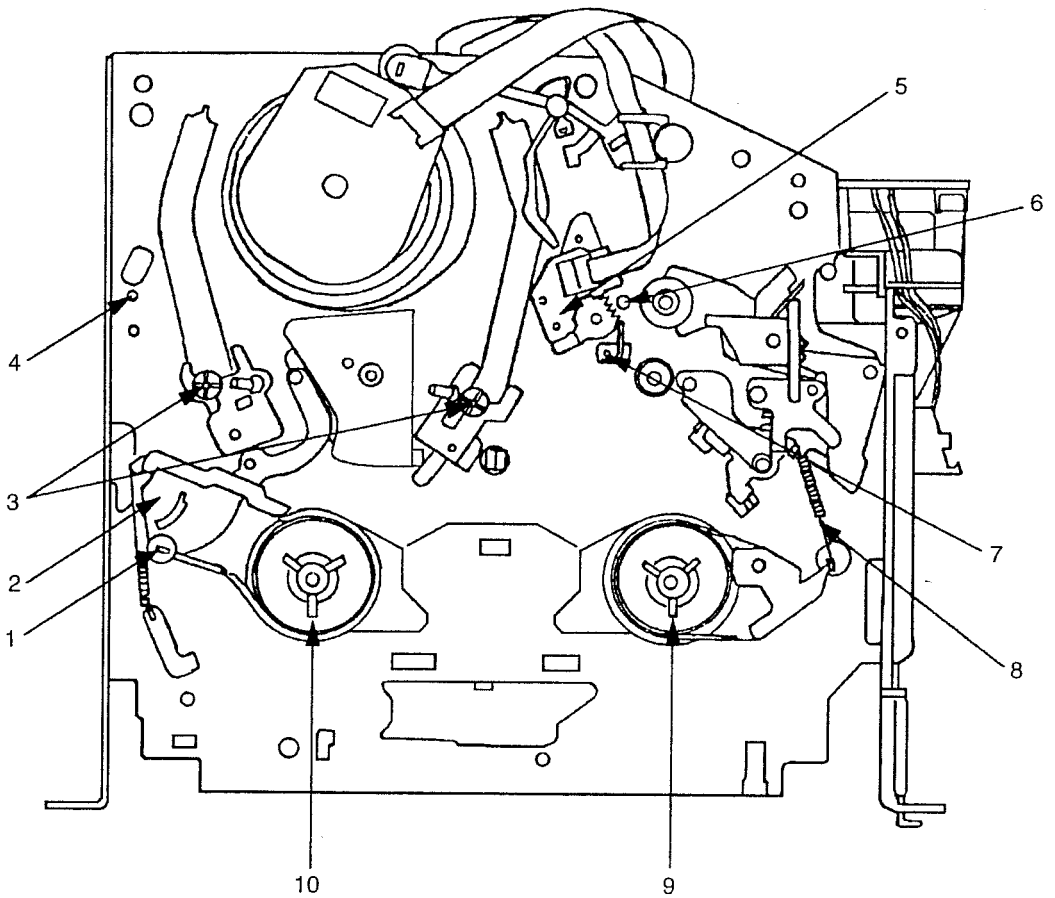
1. Confirm and adjust the height of the Reel Disk. **(Refer to item 1-1)**
2. Confirm and adjust the position of the Tension Post. **(Refer to item 1-2)**
3. Adjust the Guide Roller. **(Refer to item 2-1)**
4. Confirm and adjust the Audio/Control Head. **(Refer to item 2-2)**
5. Connect CH-1 of the oscilloscope to **TP4002**, CH-2 to **TP4001** and CH-3 to **HOT side of Audio Out Jack**.
6. Playback the VHS Alignment Tape **(JG001U or JG001V)**. **(Refer to SERVICING FIXTURE AND TOOLS)**
7. Press and hold the Tracking-Auto button on the remote control for more than 2 seconds to set tracking to center.
8. Set the X Value adjustment driver **(JG153)** to the ④ of **Fig. 2-2-B**. Adjust X value so that the envelope waveform output becomes maximum. Check if the relation between Audio and Envelope waveform becomes (1) or (2) of **Fig. 2-1-A**.

2-4: CONFIRM HI-FI AUDIO (Hi-Fi model only)

1. Connect CH-1 of the oscilloscope to **TP4002**, CH-2 to **TP4001** and CH-3 to the **Hi-Fi Audio Out Jack**.
2. Playback the VHS Alignment Tape **(JG001R)**. **(Refer to SERVICING FIXTURE AND TOOLS)**
3. Press and hold the Tracking-Auto button on the remote control for more than 2 seconds to set tracking to center.
4. Press the Tracking Up button and count number of steps which the audio output is changed from Hi-Fi (10KHz) to MONO (6KHz).
5. Press the Tracking Down button and count number of steps which the audio output is changed from Hi-Fi (10KHz) to MONO (6KHz).
6. Confirm that the difference between these counted steps number in the above items are within 2 steps. If the difference are more than 3 steps, do Tape Running Adjustment again. **(Refer to item 2-3)**

MECHANICAL ADJUSTMENTS

3. MECHANISM ADJUSTMENT PARTS LOCATION GUIDE



1. Tension Adjust
2. Tension Arm
3. Guide Roller
4. P1 Post
5. Audio/Control Head
6. X value adjustment driver hole
7. P4 Post
8. T Brake Spring
9. T Reel
10. S Reel

ELECTRICAL ADJUSTMENTS

Read and perform these adjustments when repairing the circuits or replacing electrical parts or PCB assemblies.

1.BASIC ADJUSTMENT

CAUTION

When replacing IC's or transistors, use only specified silicon grease **(YG6260M)**.
(To prevent the damage to IC's and transistors.)

1-1: PG SHIFTER

CONDITIONS

MODE-PLAYBACK
Input Signal-Alignment Tape **(JG001E)**

INSTRUCTIONS

1. Connect CH-1 on the oscilloscope to **TP4001** and CH-2 to **pin 19 of J4501**.
2. Playback the alignment tape. **(JG001E)**
3. Press and hold the Tracking-Auto button on the remote control more than 2 seconds to set tracking to center.
4. Press both CH UP button and STOP button on the set for more than 2 seconds. If the indicator ATR disappear's, the adjustment is finished. **(Refer to Fig. 1-1-A, B)**

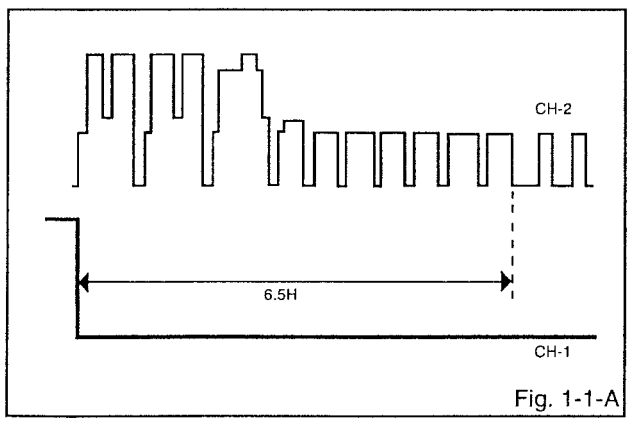


Fig. 1-1-A

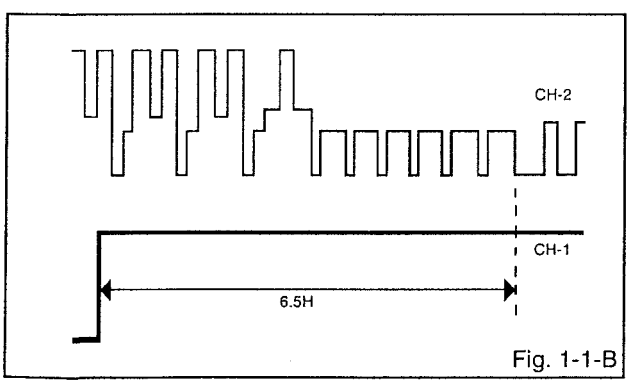


Fig. 1-1-B

1-2: SEPARATION

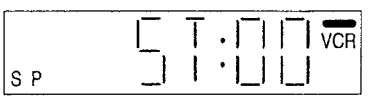
CONDITIONS

MODE-STOP
AUDIO OUTPUT SW: STEREO POSITION
Input Signal-RF Signal

INSTRUCTIONS

1. Receive the audio signal (L ch: No Signal, R ch: 1KHz).
2. Connect the AC voltmeter to **AUDIO OUT (L ch)**.
3. Press both CH UP button and STOP button on the set for more than 3 seconds.
   The fluorescent display on the set displays as below.

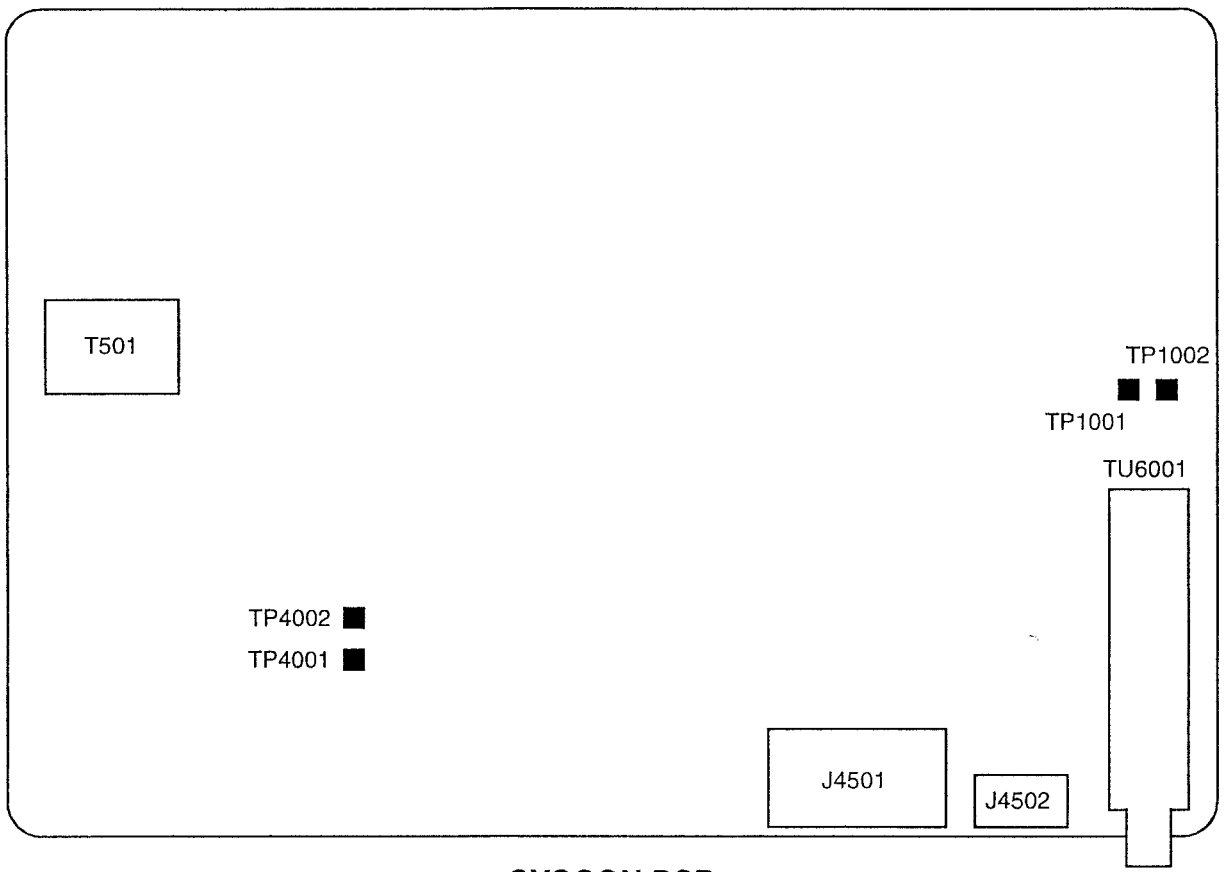
4. Press the F.FWD or REW button on the remote control.
   The fluorescent display on the set displays as below.



5. Adjust the F.FWD and REW button on the remote control until output signal is minimum. (more than 25dB)
6. Press both CH UP button and STOP button of the set together to complete the adjustment.
7. Receive the audio signal (L ch: 1KHz, R ch: No Signal).
8. Connect the AC voltmeter to **AUDIO OUT (R ch)**.
9. Repeat steps 3 ~ 6.

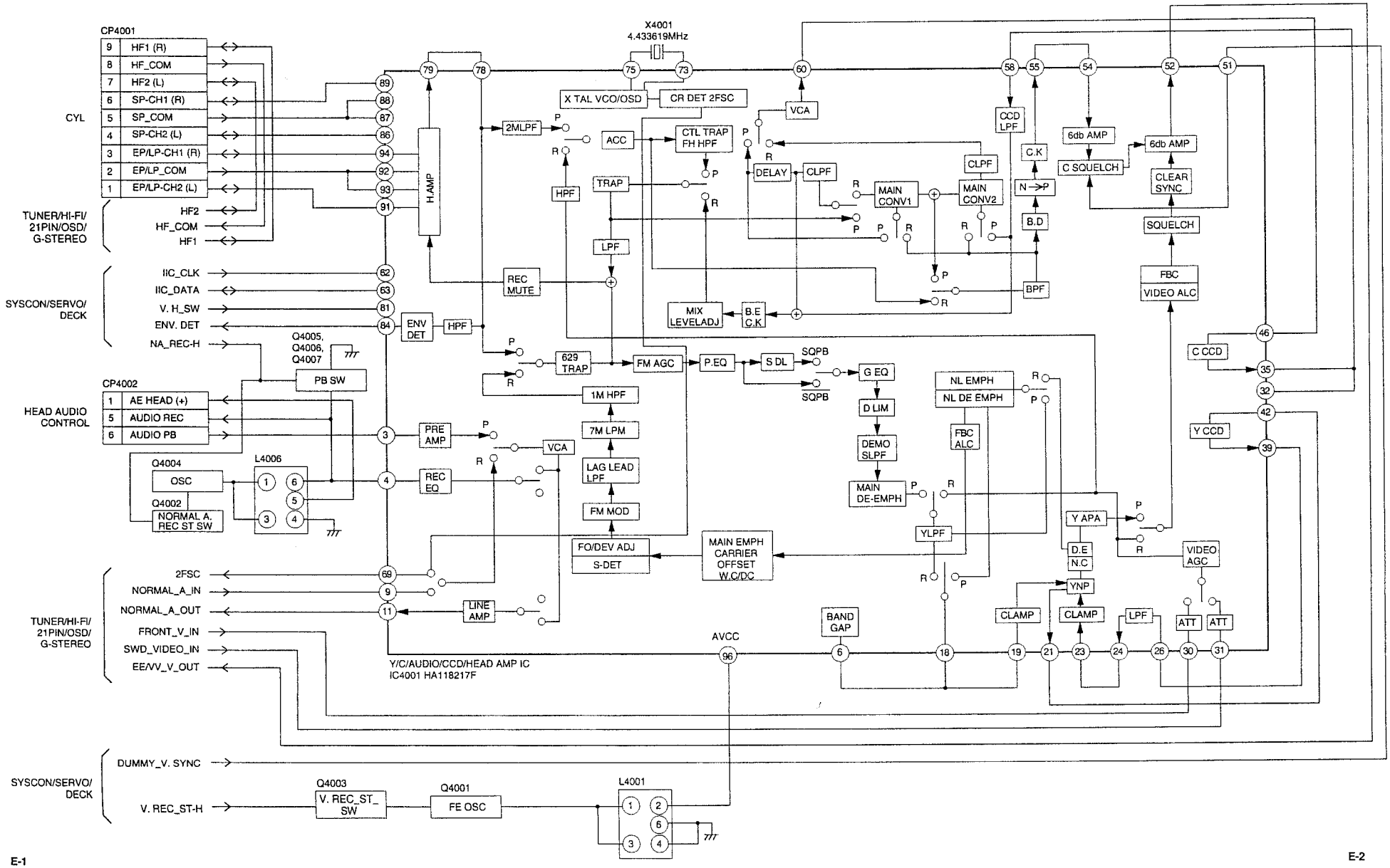
ELECTRICAL ADJUSTMENTS

2. ELECTRICAL ADJUSTMENT PARTS LOCATION GUIDE

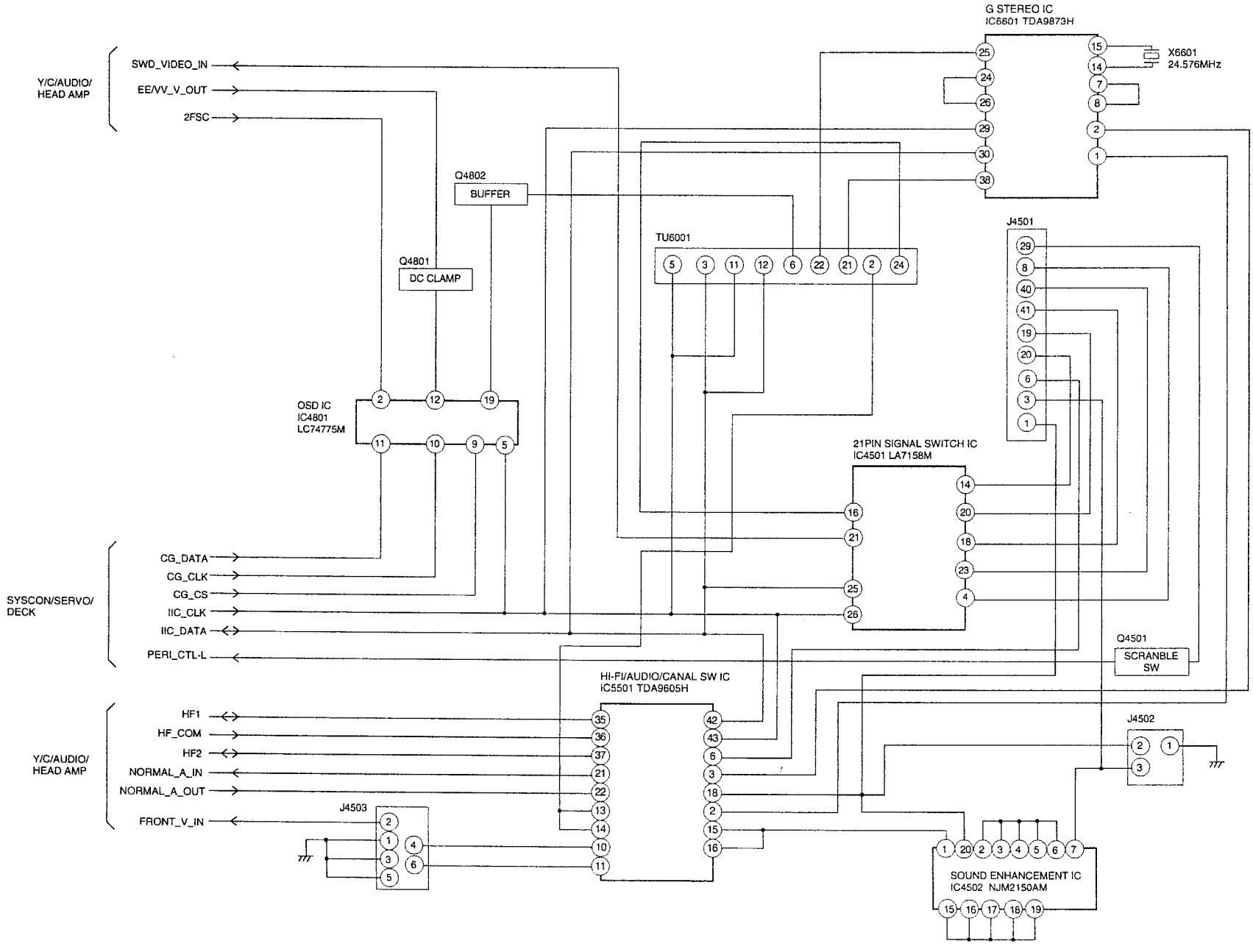


SYSCON PCB

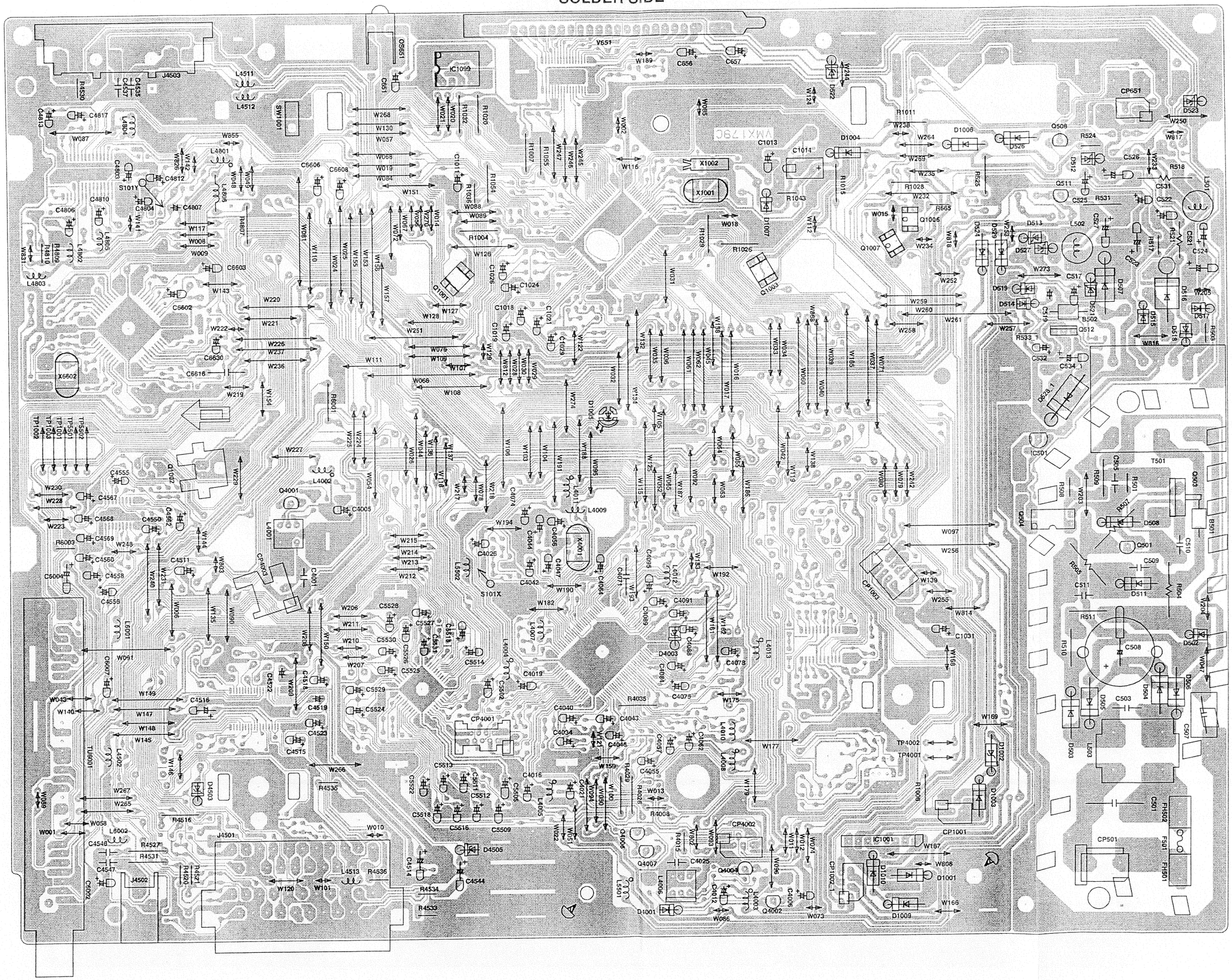
Y/C/AUDIO/HEAD AMP BLOCK DIAGRAM



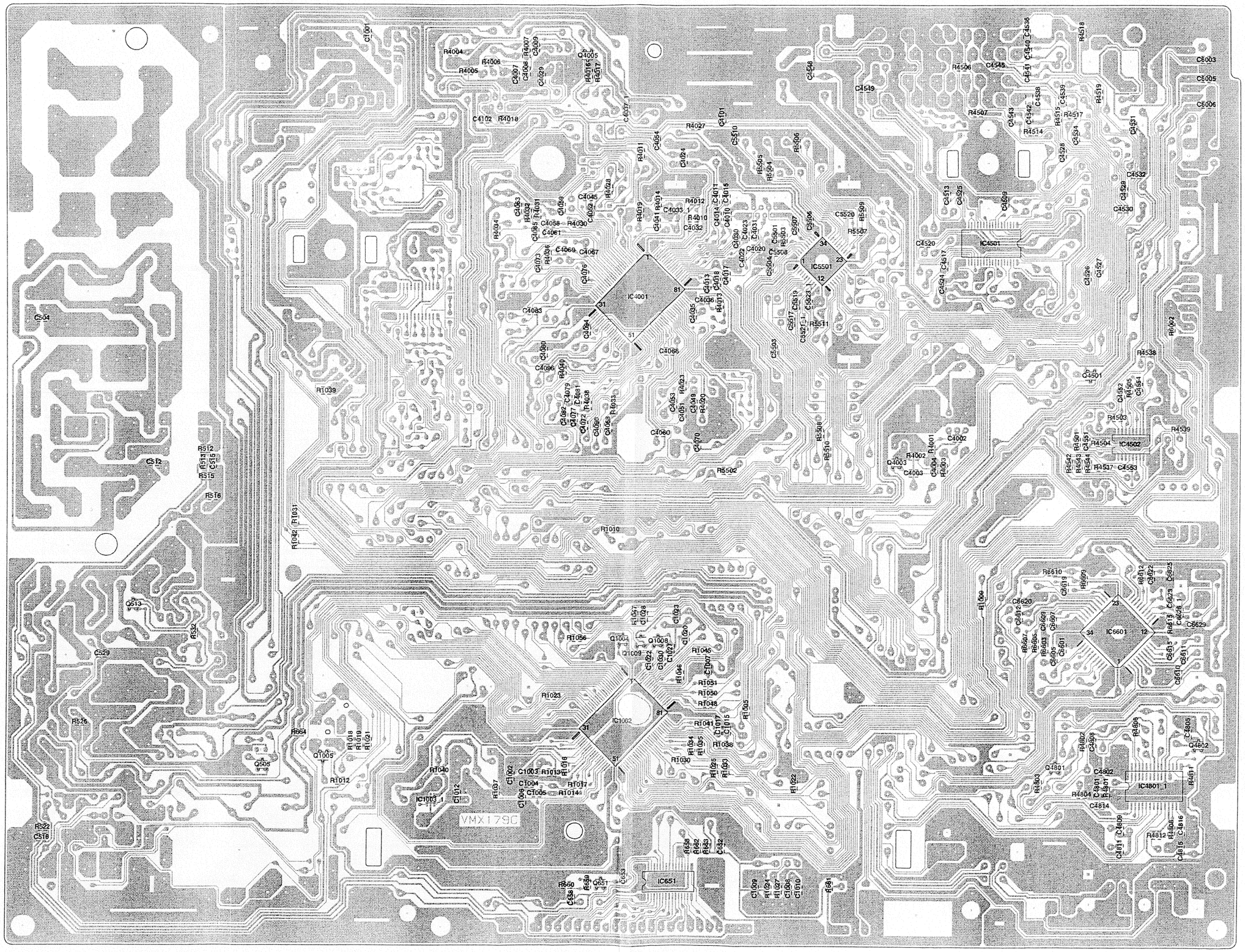
TUNER/HI-FI/21PIN/OSD/G-STEREO BLOCK DIAGRAM



PRINTED CIRCUIT BOARDS
SYSCON (INSERTED PARTS)
SOLDER SIDE

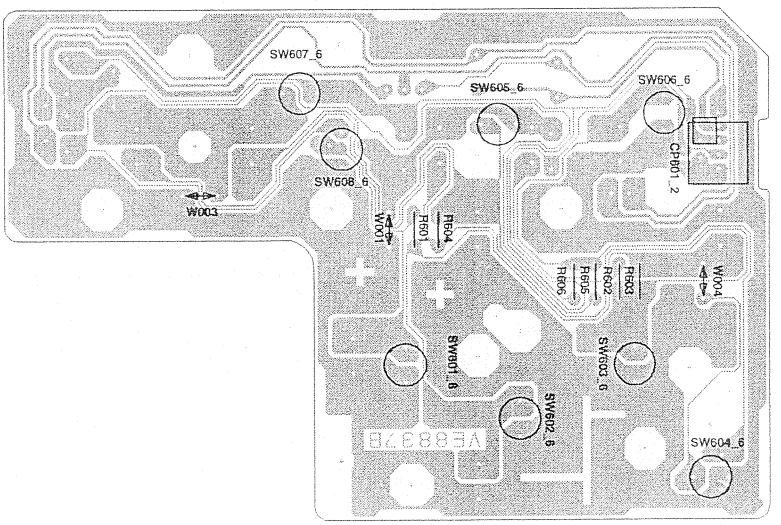


PRINTED CIRCUIT BOARDS
SYSCON (CHIP MOUNTED PARTS)
SOLDER SIDE

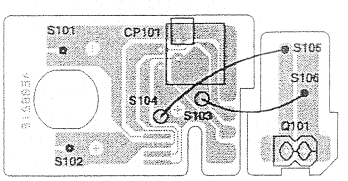


PRINTED CIRCUIT BOARDS

OPERATION
SOLDER SIDE



DECK
SOLDER SIDE



Y/C/AUDIO/HEAD AMP SCHEMATIC DIAGRAM

(SYSCON PCB)

FROM/TO SYSCON/SERVO

V.H_SW
PICTURE_CTL
NA_REC-H
DUMMY_V.SYNC
SYNC
A_MUTE/TRICK-H
IIC_DATA
IIC_CLK
ENV.DET
CTL+
CTL-
V.REC_ST-H

FROM/TO 21PIN/OSD

2FSC
SWD_VIDEO_IN
EE/VV_V_OUT
FRONT_V_IN

FROM/TO TUNER/HI-FI

NORMAL_A_IN
NORMAL_A_OUT
HF1
HF2
HF_COM

FROM POWER

AT+5.8V
P.CON+5V
GND

FROM/TO CYL

CP4001 TOC-C09X-A1

9	HF1 (R)	HF1
8	HF_COM	HF_COM
7	HF2 (L)	HF2
6	SP-CH1 (R)	SP-R
5	SP_COM	SP_COM
4	SP-CH2 (L)	SP-L
3	EP/LP-CH1 (R)	EP-R
2	EP/LP_COM	EP_COM
1	EP/LP-CH2 (L)	EP-L

FROM/TO HEAD AUDIO CONTROL

CP4002
IMSA-9604S-06Z14

1	AE HEAD(+)	
2	AE HEAD(-)	
3	CTL-	CTL-
4	CTL+	CTL+
5	AUDIO REC	
6	AUDIO PB	

TO FULL ERASE HEAD

CP4003
TMC-T02X-E1

1	FE HEAD(GND)
2	FE HEAD(HOT)

CAUTION: DIGITAL TRANSISTOR

CAUTION: DIGITAL TRANSISTOR

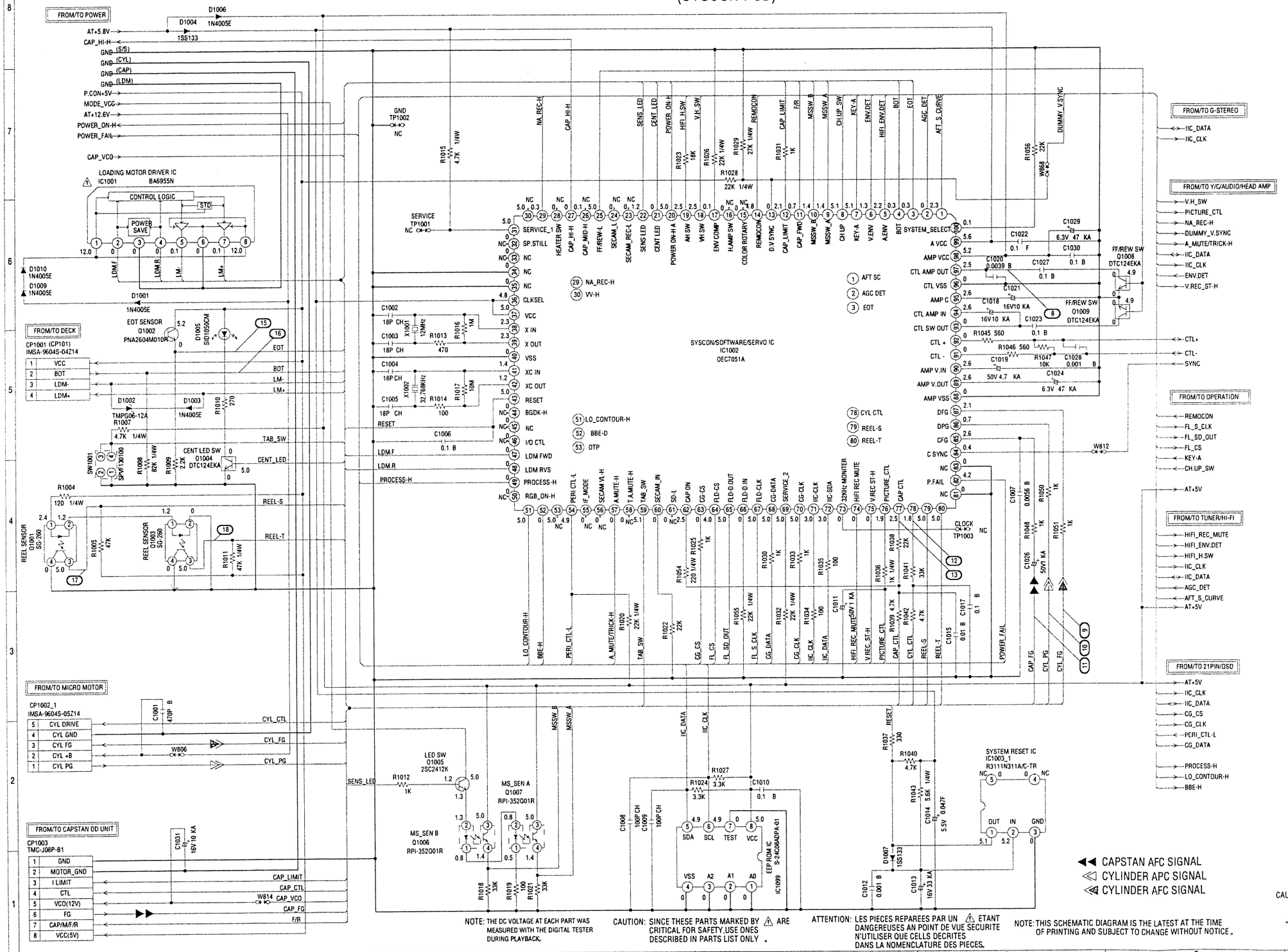
NOTE: THE DC VOLTAGE AT EACH PART WAS MEASURED WITH THE DIGITAL TESTER DURING PLAYBACK.

NOTE: THIS SCHEMATIC DIAGRAM IS THE LATEST AT THE TIME OF PRINTING AND SUBJECT TO CHANGE WITHOUT NOTICE.

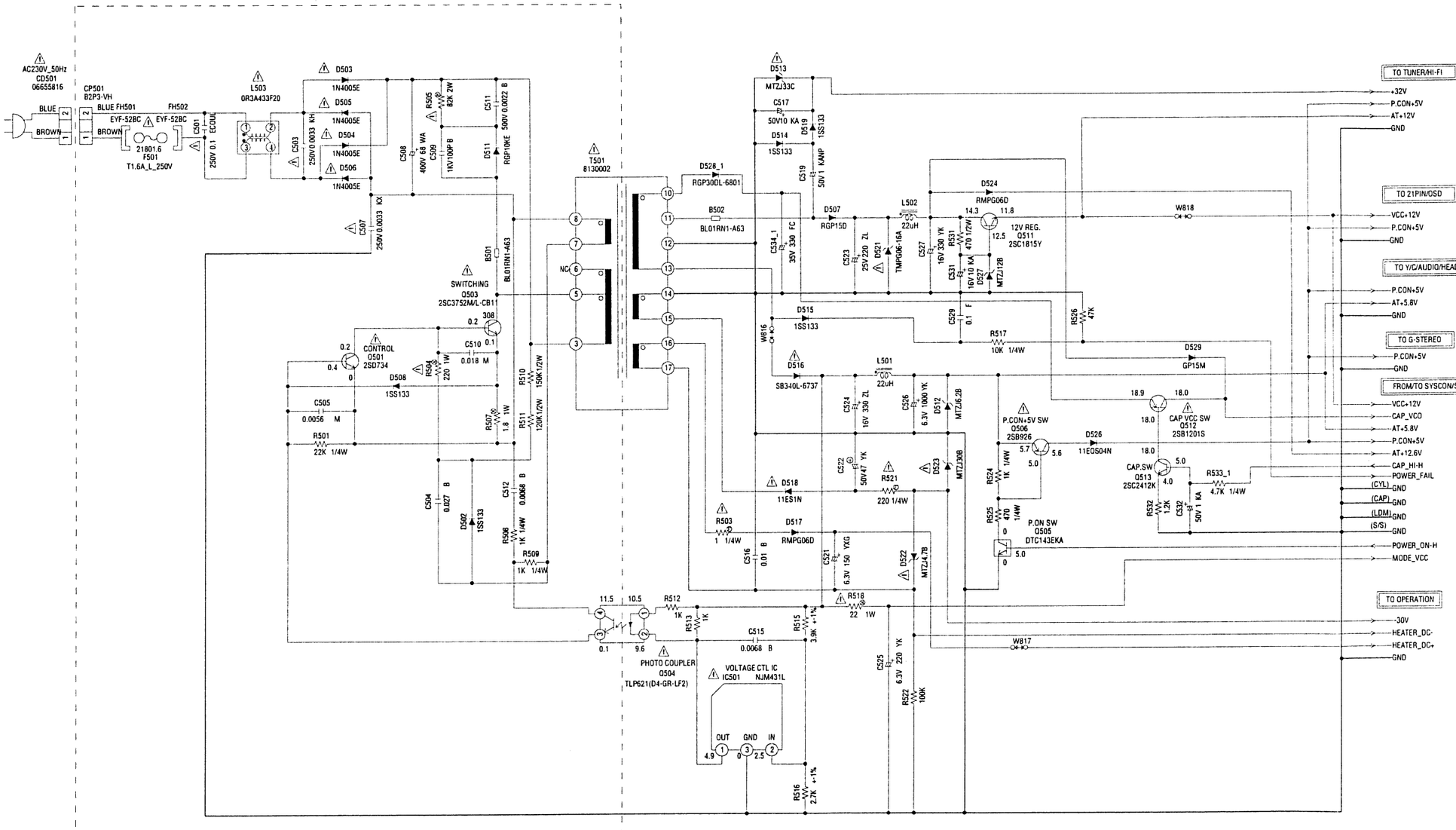
- RECORD LUMINANCE SIGNAL
- RECORD COLOR SIGNAL
- PLAYBACK LUMINANCE SIGNAL
- PLAYBACK COLOR SIGNAL
- AUDIO SIGNAL(PB)
- AUDIO SIGNAL(REC)

PCB010
VMX179

SYSTEM CONTROL/SERVO SCHEMATIC DIAGRAM
(SYSCON PCB)



POWER SCHEMATIC DIAGRAM
(SYSCON PCB)



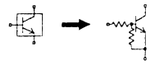
CAUTION: SINCE THESE PARTS MARKED BY ⚠ ARE CRITICAL FOR SAFETY, USE ONES DESCRIBED IN PARTS LIST ONLY .

ATTENTION: LES PIECES REPAREES PAR UN ⚠ ETANT DANGEREUSES AN POINT DE VUE SECURITE N'UTILISER QUE CELLS DECRITES DANS LA NOMENCLATURE DES PIECES.

NOTE: THE DC VOLTAGE AT EACH PART WAS MEASURED WITH THE DIGITAL TESTER DURING PLAYBACK.

NOTE: THIS SCHEMATIC DIAGRAM IS THE LATEST AT THE TIME OF PRINTING AND SUBJECT TO CHANGE WITHOUT NOTICE .

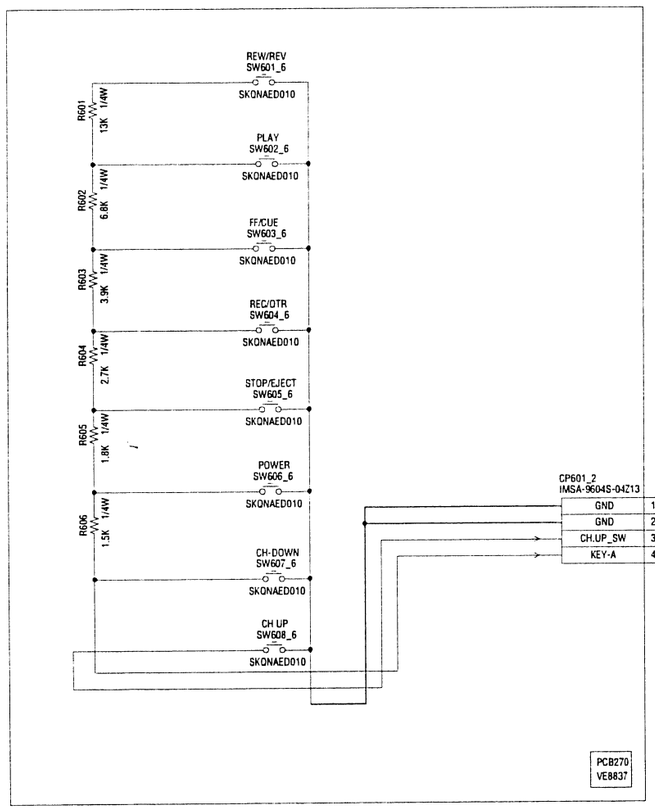
CAUTION: DIGITAL TRANSISTOR

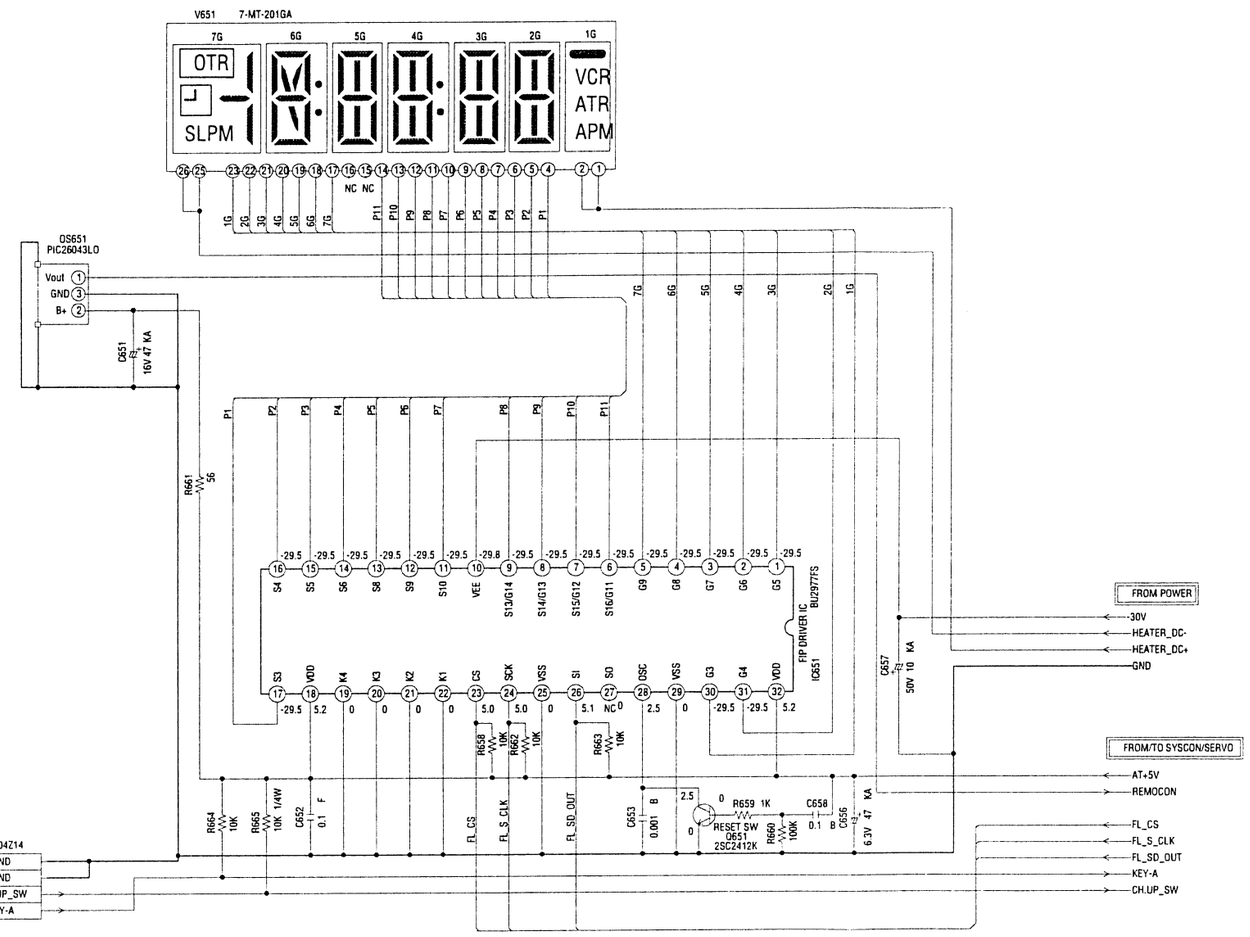


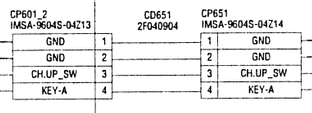
PCB010
VMX179

OPERATION SCHEMATIC DIAGRAM

(SYSCON PCB)





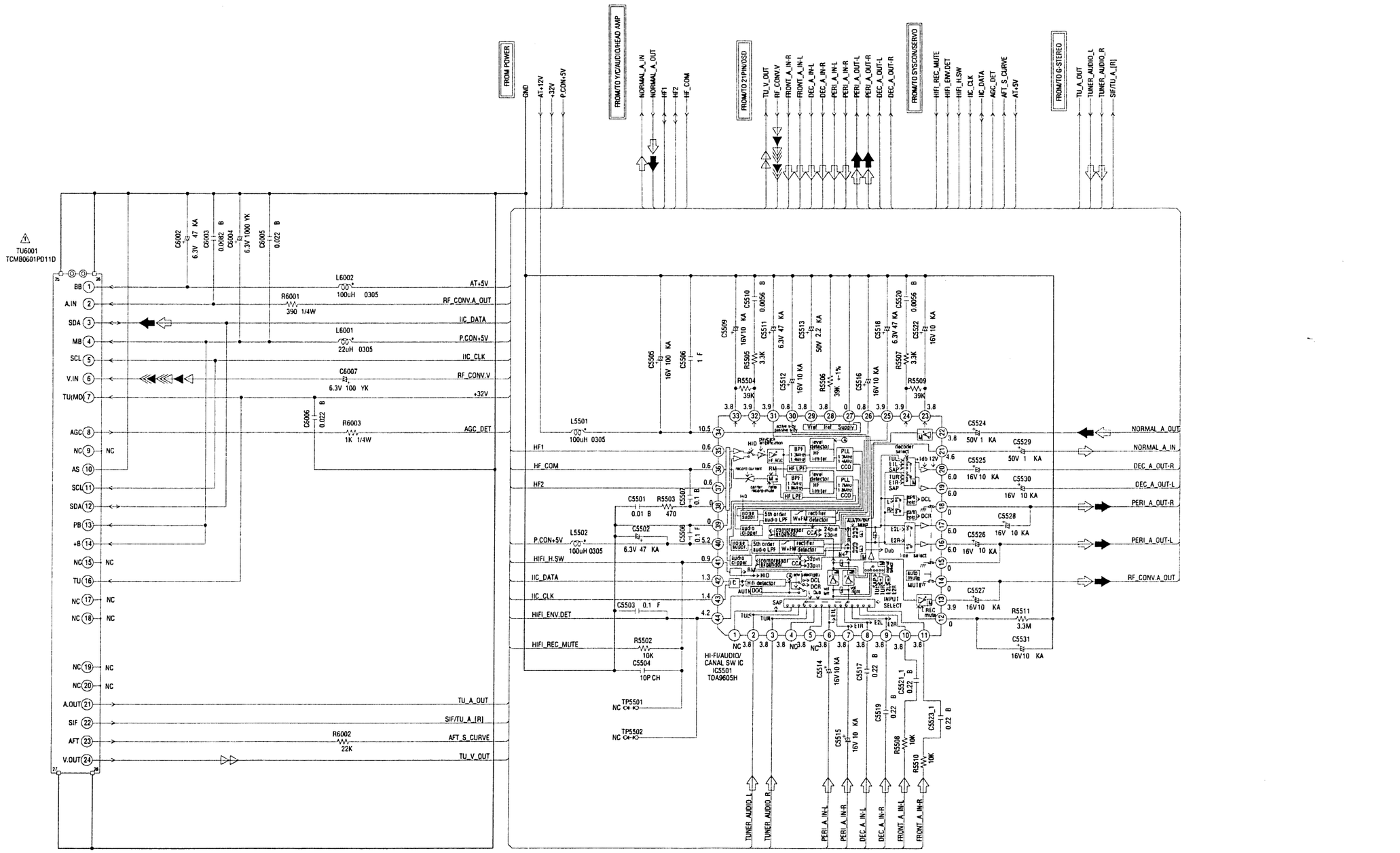


NOTE: THE DC VOLTAGE AT EACH PART WAS MEASURED WITH THE DIGITAL TESTER DURING PLAYBACK.

NOTE: THIS SCHEMATIC DIAGRAM IS THE LATEST AT THE TIME OF PRINTING AND SUBJECT TO CHANGE WITHOUT NOTICE.

PCB010
VMX179

TUNER/HI-FI SCHEMATIC DIAGRAM
(SYSCON PCB)



◀◀◀ RECORD LUMINANCE SIGNAL
◀◀◀ RECORD COLOR SIGNAL
◀ PLAYBACK LUMINANCE SIGNAL
◁ PLAYBACK COLOR SIGNAL
◁◁ TUNER VIDEO SIGNAL
⬅ AUDIO SIGNAL(PB)
⇦ AUDIO SIGNAL(REC)

PCB010
VMX179

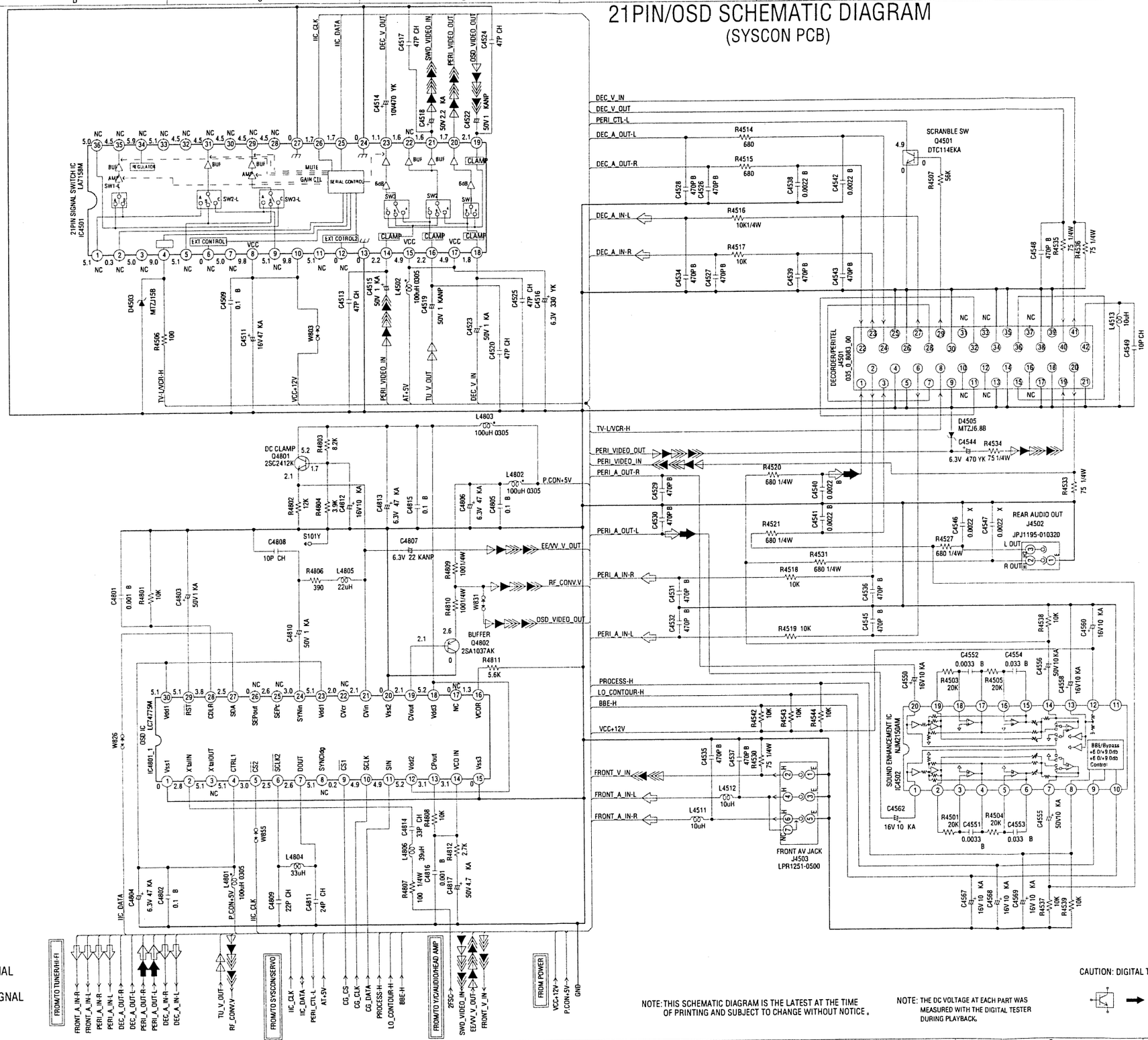
NOTE: THE DC VOLTAGE AT EACH PART WAS MEASURED WITH THE DIGITAL TESTER DURING PLAYBACK.

NOTE: THIS SCHEMATIC DIAGRAM IS THE LATEST AT THE TIME OF PRINTING AND SUBJECT TO CHANGE WITHOUT NOTICE.

CAUTION: SINCE THESE PARTS MARKED BY ⚠ ARE CRITICAL FOR SAFETY. USE ONES DESCRIBED IN PARTS LIST ONLY.

ATTENTION: LES PIECES REPAREES PAR UN ⚠ ETANT DANGEREUSES AN POINT DE VUE SECURITE N'UTILISER QUE CELLS DECRITES DANS LA NOMENCLATURE DES PIECES.

21PIN/OSD SCHEMATIC DIAGRAM
(SYSCON PCB)



TUNER VIDEO SIGNAL
RECORD LUMINANCE SIGNAL
RECORD COLOR SIGNAL
PLAYBACK LUMINANCE SIGNAL
PLAYBACK COLOR SIGNAL
AUDIO SIGNAL(REC)
AUDIO SIGNAL(PB)

FROM/TO TUNER/HI-FI: FRONT_A_IN-R, FRONT_A_IN-L, PERI_A_IN-R, PERI_A_IN-L, DEC_A_OUT-R, DEC_A_OUT-L, PERI_A_OUT-R, PERI_A_OUT-L, DEC_A_IN-R, DEC_A_IN-L

TU_V_OUT, RF_CONV.V

FROM/TO SYSCON/SERVO: IIC_CLK, IIC_DATA, PERI_CTL-L, AT+5V, CG_CS, CG_CLK, CG_DATA, PROCESS-H, LO_CONTOUR-H, BBE-H

FROM/TO Y/C/AUDIO/HEAD AMP: ZFSC, SWD_VIDEO_IN, EE/VV_V_OUT, FRONT_V_IN

FROM POWER: VCC+12V, P.CON+5V, GND

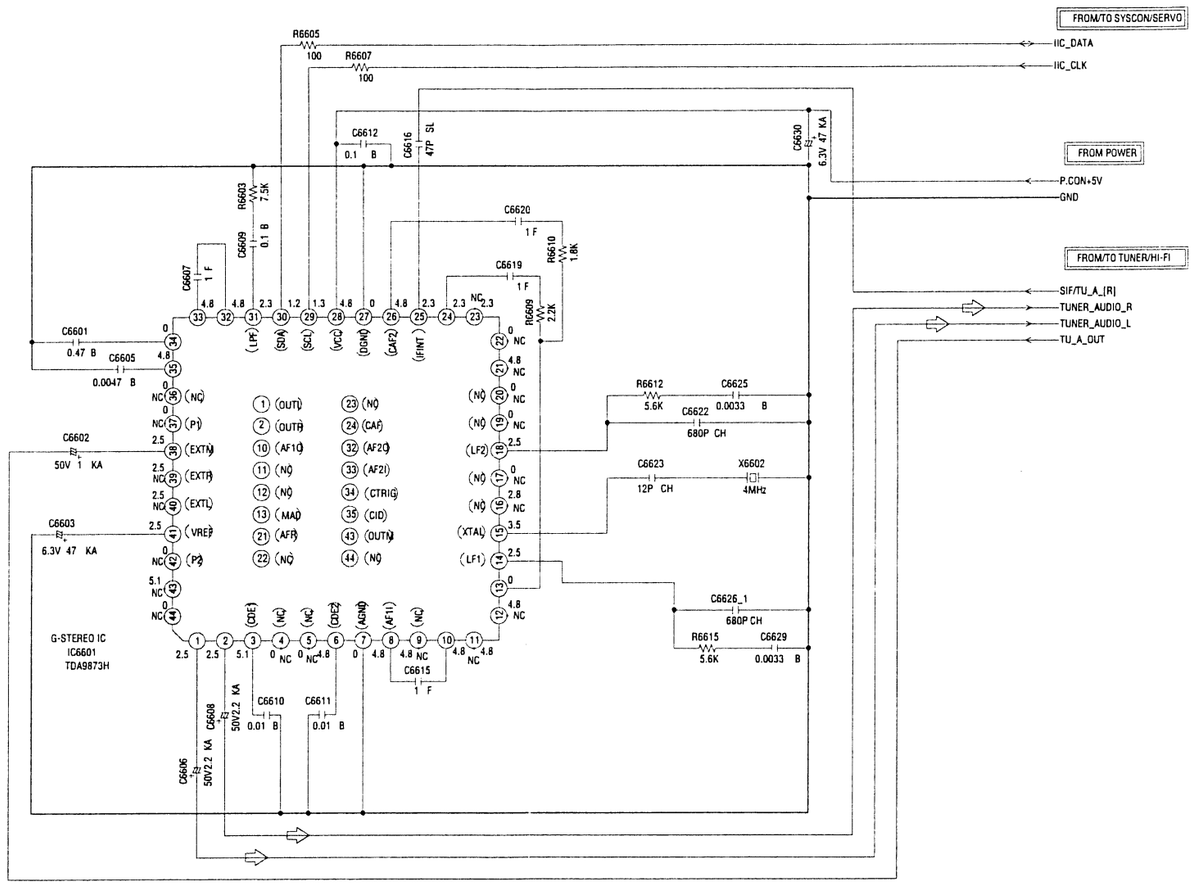
NOTE: THIS SCHEMATIC DIAGRAM IS THE LATEST AT THE TIME OF PRINTING AND SUBJECT TO CHANGE WITHOUT NOTICE.

NOTE: THE DC VOLTAGE AT EACH PART WAS MEASURED WITH THE DIGITAL TESTER DURING PLAYBACK.

CAUTION: DIGITAL TRANSISTOR

PCB010
VMX179

G-STEREO SCHEMATIC DIAGRAM
(SYSCON PCB)



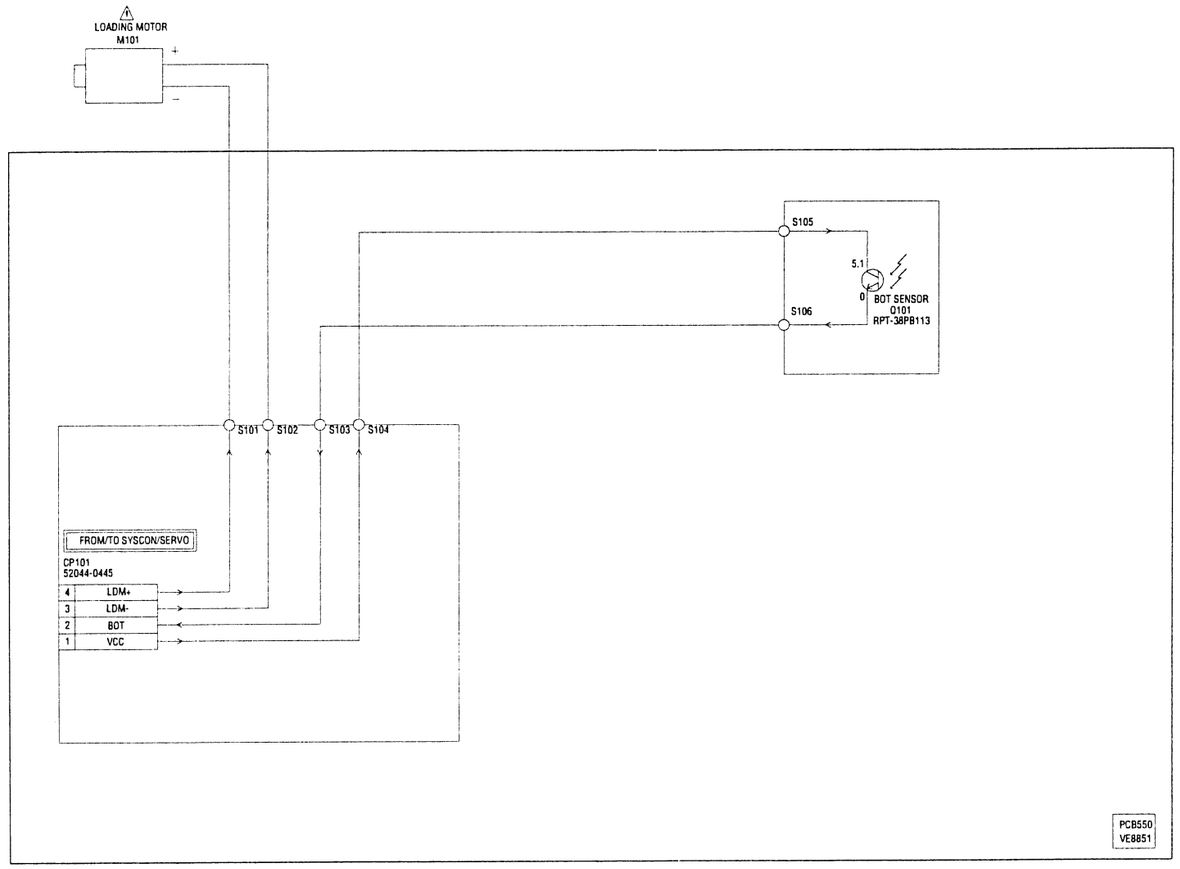
NOTE: THE DC VOLTAGE AT EACH PART WAS MEASURED WITH THE DIGITAL TESTER DURING PLAYBACK.

NOTE: THIS SCHEMATIC DIAGRAM IS THE LATEST AT THE TIME OF PRINTING AND SUBJECT TO CHANGE WITHOUT NOTICE.

⇦ AUDIO SIGNAL(REC)

PCB010
VMX179

DECK SCHEMATIC DIAGRAM
(DECK PCB)



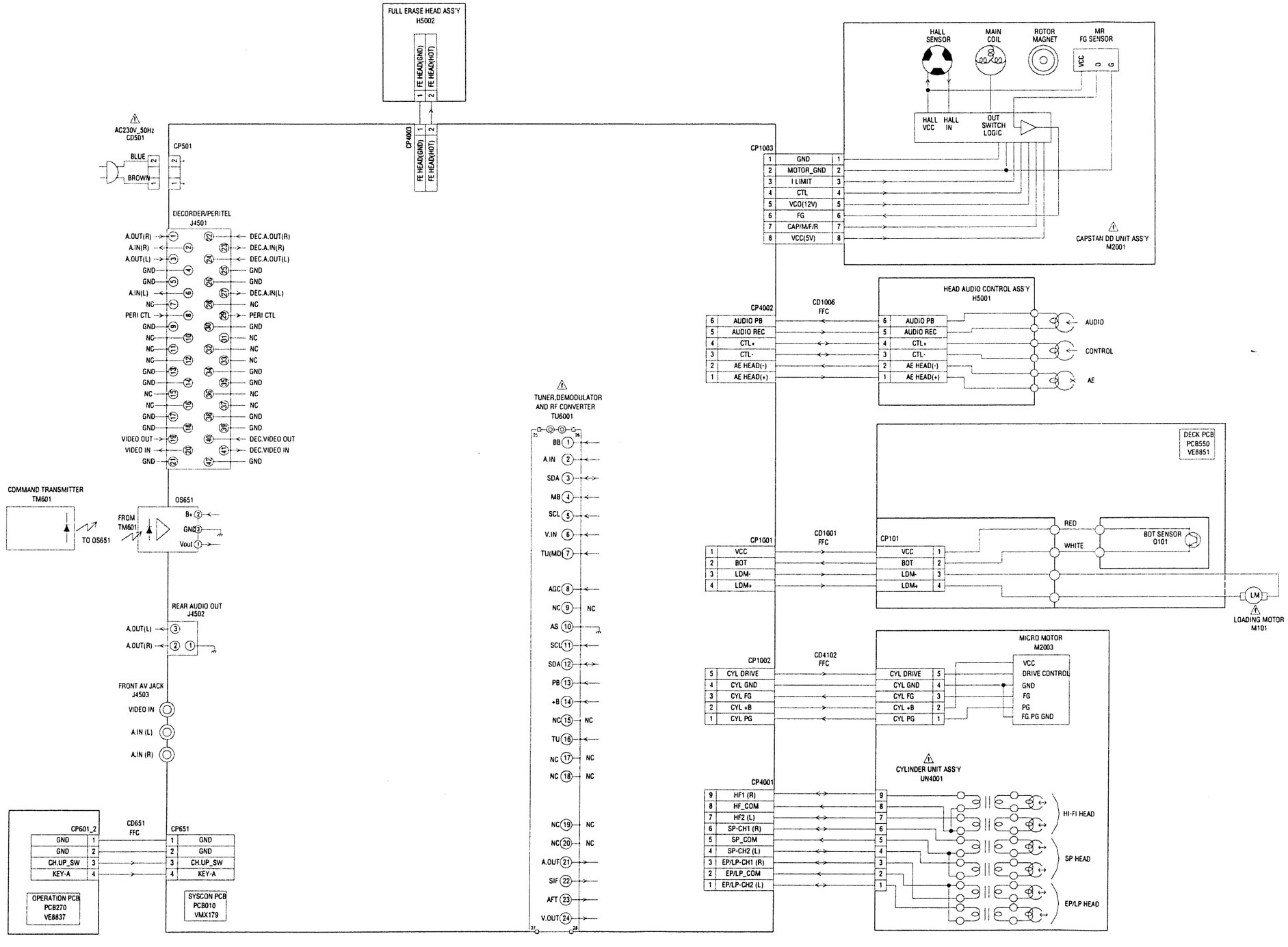
CAUTION: SINCE THESE PARTS MARKED BY ⚠ ARE CRITICAL FOR SAFETY,USE ONES DESCRIBED IN PARTS LIST ONLY 。

ATTENTION: LES PIECES REPAREES PAR UN ⚠ ETANT DANGEREUSES AN POINT DE VUE SECURITE N'UTILISER QUE CELLS DECRITES DANS LA NOMENCLATURE DES PIECES。

NOTE: THE DC VOLTAGE AT EACH PART WAS MEASURED WITH THE DIGITAL TESTER DURING PLAYBACK。

NOTE: THIS SCHEMATIC DIAGRAM IS THE LATEST AT THE TIME OF PRINTING AND SUBJECT TO CHANGE WITHOUT NOTICE 。

INTERCONNECTION DIAGRAM



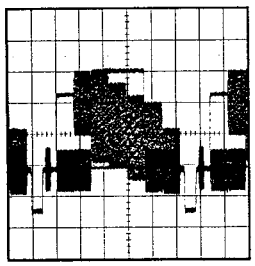
ATTENTION: LES PIECES REPAREES PAR UN ⚠ ETANT DANGEREUSES AN POINT DE VUE SECURITE N'UTILISER QUE CELLS DECRITES DANS LA NOMENCLATURE DES PIECES.

CAUTION: SINCE THESE PARTS MARKED BY ⚠ ARE CRITICAL FOR SAFETY,USE ONES DESCRIBED IN PARTS LIST ONLY .

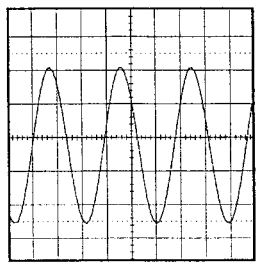
NOTE: THIS INTERCONNECTION DIAGRAM IS THE LATEST AT THE TIME OF PRINTING AND SUBJECT TO CHANGE WITHOUT NOTICE .

WAVEFORMS

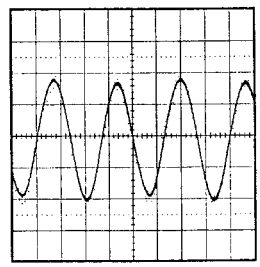
Y/C/AUDIO/HEAD AMP



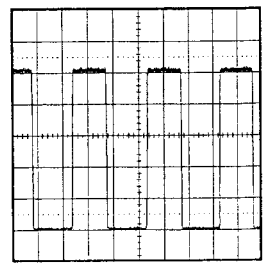
① REC
0.5V 10U/div



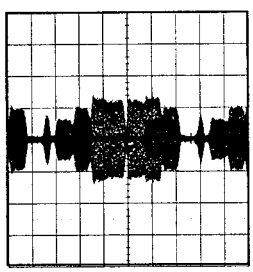
⑥ REC
10V 5U/div



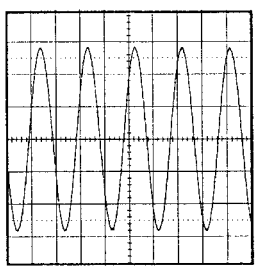
⑪ REC, PB
0.5V 0.5V/div



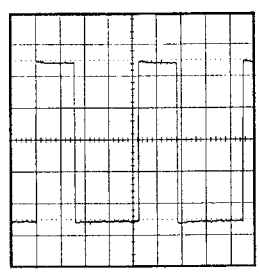
⑰ REC, PB
1V 0.5s/div



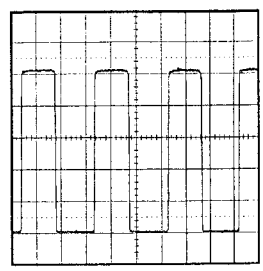
② PB
200mV 10U/div



⑦ REC, PB
200mV 0.5V/div

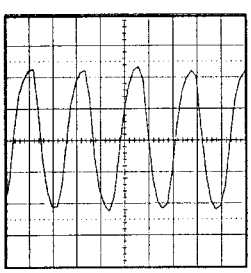


⑫ REC, PB
1V 5U/div

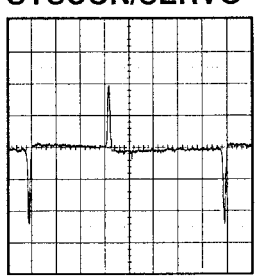


⑱ REC, PB
1V 0.5s/div

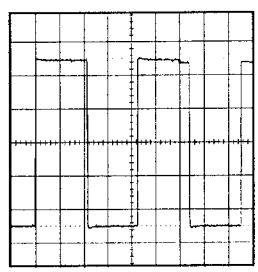
SYSCON/SERVO



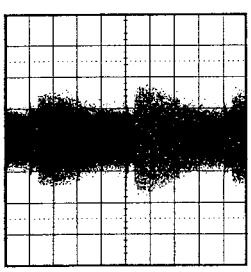
③ POWER ON
100mV 50T/div



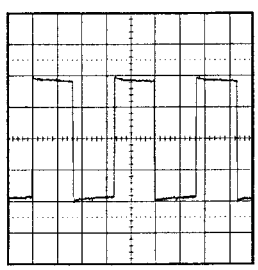
⑧ REC, PB
1V 5V/div



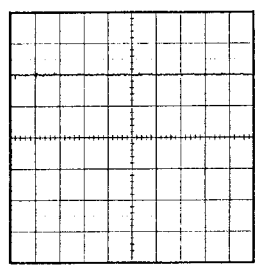
⑬ REC, PB
1V 5U/div



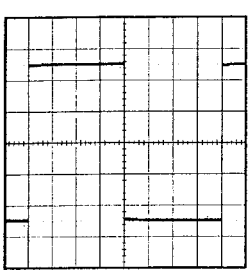
④ PB
100mV 5V/div



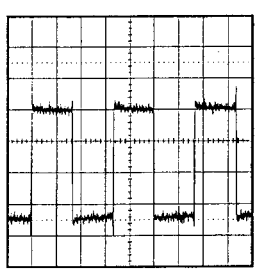
⑨ REC, PB
1V 0.5V/div



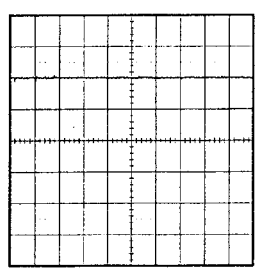
⑮ CASS. LESS
1V 10U/div



⑤ REC, PB
1V 5V/div



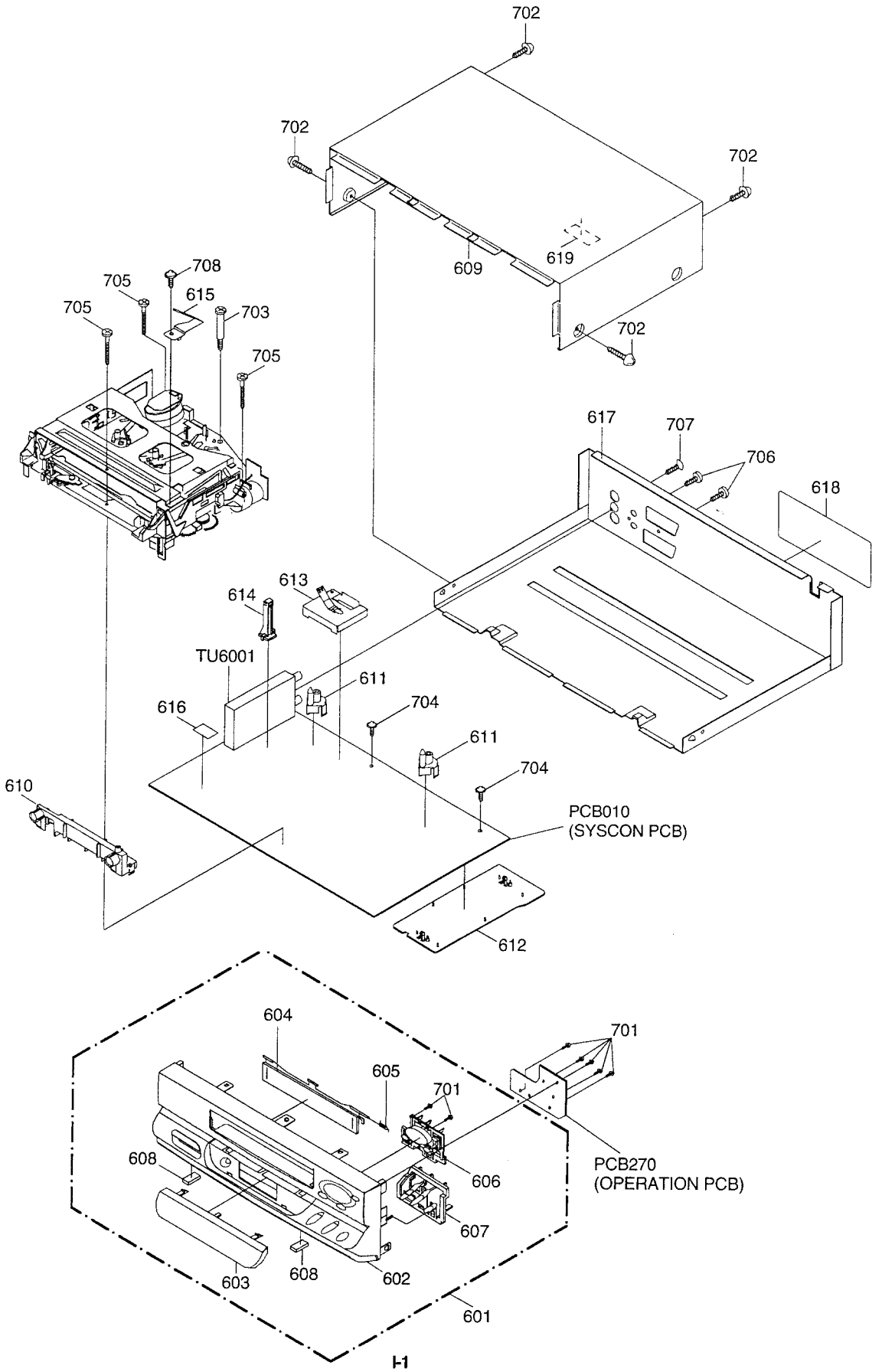
⑩ REC, PB
200mV 0.5V/div



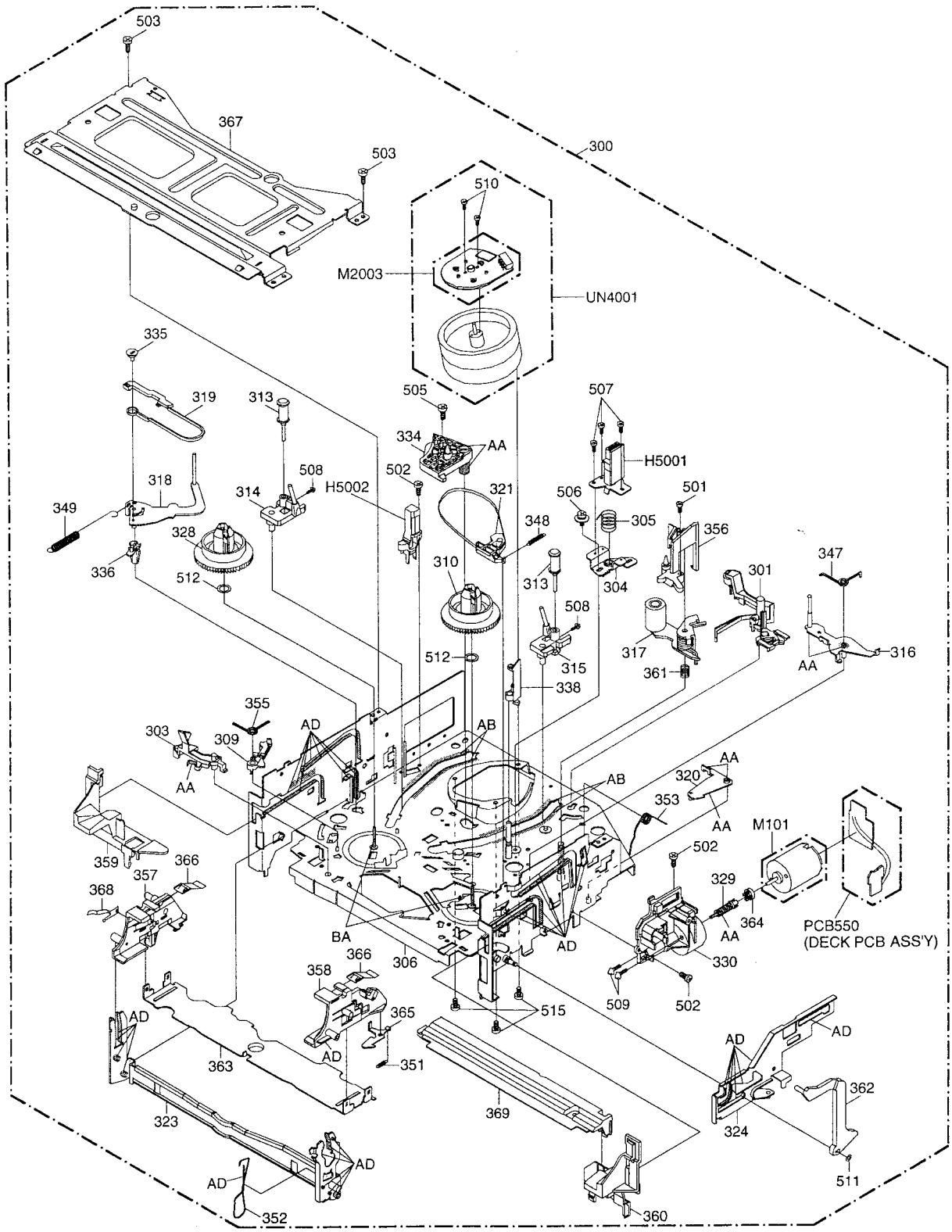
⑯ CASS. LESS
1V 10U/div

NOTE: The following waveforms were measured at the point of the corresponding balloon number in the schematic diagram.

MECHANICAL EXPLODED VIEW



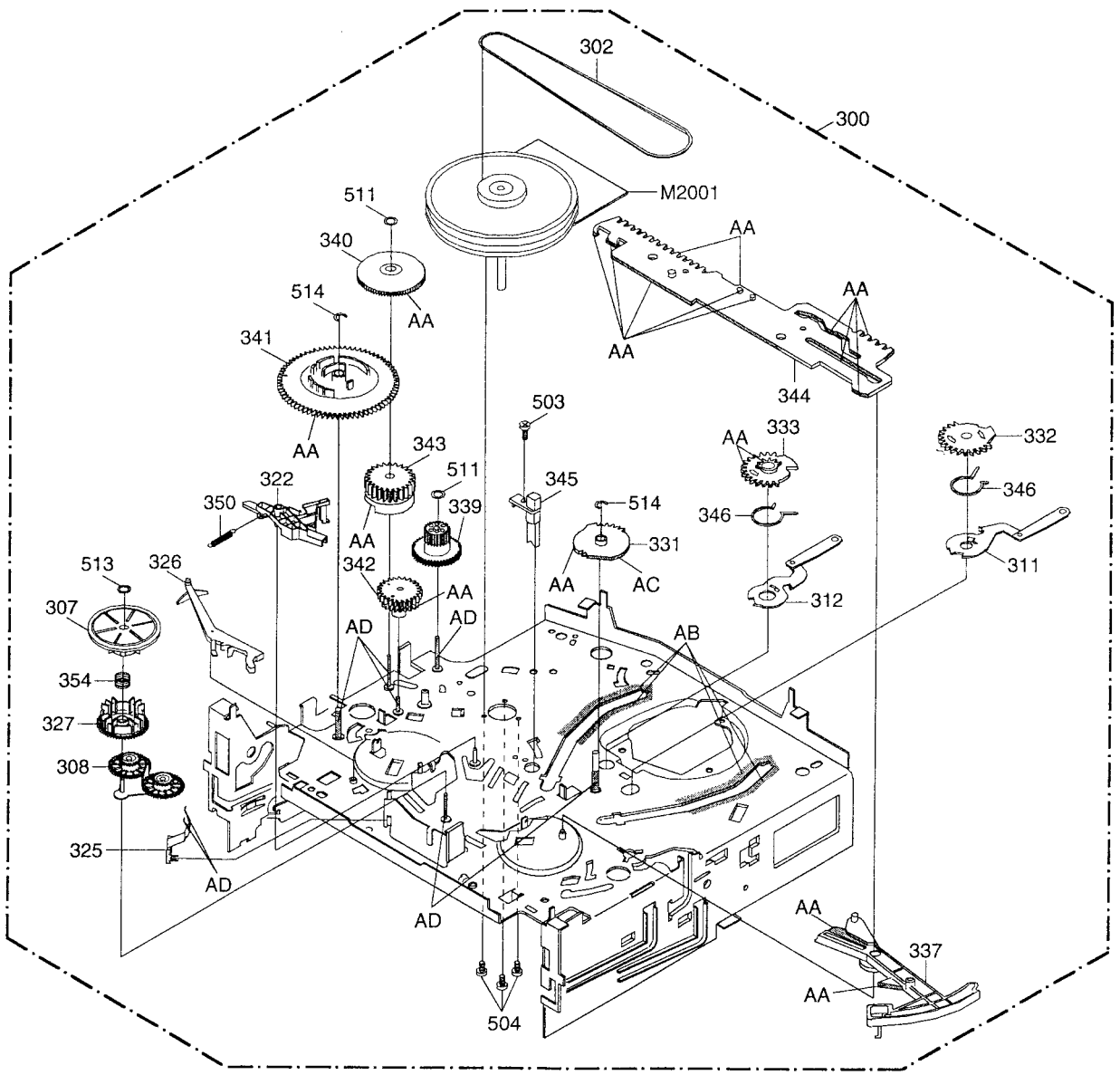
CHASSIS EXPLODED VIEW (TOP VIEW)



CLASS	PART NO.	MARK
GREASE	G-555G	AA
	G-488M	AB
	FL-721	AC
	MG-33	AD
OIL	FL OIL No. 6115	BA

NOTE: Applying positions AA, AB, AC, AD and BA for the grease or oil are displayed for this section. Check if the correct grease or oil is applied for each position.

CHASSIS EXPLODED VIEW (BOTTOM VIEW)



CLASS	PART NO.	MARK
GREASE	G-555G	AA
	G-488M	AB
	FL-721	AC
	MG-33	AD
OIL	FL OIL No. 6115	BA

NOTE: Applying positions AA, AB, AC, AD and BA for the grease or oil are displayed for this section. Check if the correct grease or oil is applied for each position.

MECHANICAL REPLACEMENT PARTS LIST

REF. NO.	PART NO.	DESCRIPTION		
601	A4D950B720	CABINET,FRONT ASS'Y		
602	701WPJB053	CABINET,FRONT		
603	711WPAA049	PLATE,DISPLAY		
604	712WPJA772	FLAP		
605	743WKAA001	SPRING,FLAP		
606	735WPJA038	BUTTON,DECK (A)		
607	735WPJA039	BUTTON,DECK (B)		
608	800WFA0041	CUSHION,LEG		
609	702WSBA014	CABINET,TOP		
610	701WPA0348	HOLDER,DECK (A)		
611	704WPA0007	HOLDER,DECK (R)		
612	755WPA0016	PLATE,COVER POWER		
613	752WSA0212	SHIELD,CASE HEAD AMP ASS'Y		
614	85OP700036	HOLDER,EOT SENSOR		
615	753WUA0053	SPRING,EARTH 3PIN		
616	800WNA0006	SYSCON,PVC		(10x10xT0.3)
617	702WSAA011	PLATE,BOTTOM		
618	722A13A002	SHEET,RATING		
619	800WF00013	FC SHEET		(15x20xT3)
701	8110226804	SCREW,TAP TITE (P)	BIND	2.6x8
702	8107240802	SCREW,TAP TITE (S)	BIND	4x8
703	8146240644	SCREW,TAP TITE (S)	BIND	4x6
704	8151230704	SCREW,TAP TITE (S)-R	BIND	3x7
705	8107140B94	SCREW,TAP TITE (S)	PAN	4x29
706	8110230604	SCREW,TAP TITE (P)	BIND	3x6
707	8107230404	SCREW,TAP TITE (S)	BIND	3x4
708	8107226604	SCREW,TAP TITE(S)	BIND	2.6x6
—	JB5X0300	POLYBAG		
—	J4D95001	INSTRUCTION BOOK		
—	J4D95002	GUARANTEE CARD		
—	J4D95007	QUICK SET-UP SHEET		
—	791UHDA001	GIFT,SHEET		
—	792UHA0100	PACKAGE		
—	795UCA0016	CARTON,PAD		

CHASSIS REPLACEMENT PARTS LIST

REF. NO.	PART NO.	DESCRIPTION	
300	A4D938B420A	DECK ASSY	A4D938B420A
301	85OA500022	AHC ASS'Y	
302	85OP200290	BELT,CAPSTAN (S)	
303	85OP900710	LEVER,REC	
304	85OP500083	BASE,AC HEAD	
305	85OP800324	SPRING,AC HEAD	
306	85OA000367	MAIN CHASSIS ASS'Y (S-Z)	
307	85OA200082	CLUTCH ASS'Y(S2)	
308	85OA200080	ARM IDLER ASS'Y (S)	
309	85OP600556	ARM,SS BRAKE (S)	
310	85OP200292	REEL,T (S)	
311	85OA300061	LOADING ARM S ASS'Y	
312	85OA300062	LOADING ARM T ASS'Y	
313	85OA400208	GUIDE ROLLER ASS'Y	
314	85OA400188	BASE,INCL S ASS'Y	
315	85OA400196	BASE,INCL T(S) ASS'Y	
316	85OA400199	P5-3 ARM ASS'Y(S)	
317	85OA400205	PINCH ROLLER BLOCK	
318	85OA400202	TENSION ARM ASS'Y (WT)	
319	85OA400184	TENSION BAND ASS'Y (S)	
320	85OA400178	PINCH ROLLER LEVER ASS'Y	
321	85OA600196	BRAKE T ASSY(S)	
322	85OA600191	CAP BRAKE ASS'Y(S)	
323	85OA900213	LINK ASS'Y	
324	85OA900216	LINK LEVER ASS'Y	
325	85OP200284	LEVER,CLUTCH (S)	
326	85OP200285	ACTUATOR,CLUTCH	
327	85OP200298	GEAR,COUPLING(S2)	
328	85OP200291	REEL,S (S)	
329	85OP600541	WORM	
330	85OP600563	BRACKET,MOTOR	
331	85OP300178	GEAR,MAIN LOADING	
332	85OP300179	GEAR,LOADING S	
333	85OP300180	GEAR,LOADING T	
334	85OP300187	HOLDER,LOADING GEAR (S-Z)	
335	85OP400472	ADJUST,TENSION	
336	85OP400492	HOLDER,TENSION	
337	85OP400490	LEVER,TENSION	
338	85OP400475	COVER,P4	
339	85OP600543	GEAR,JOINT	
340	85OP600544	GEAR,MIDDLE	
341	85OP600554	CAM,MAIN (S)	
342	85OP600546	CAM,P5	
343	85OP600565	CAM,PINCH ROLLER	
344	85OP600561	ROD,MAIN(S)	
345	85OP700035	REFLECTOR,LED	
346	85OP800318	SPRING,LOADING GEAR	
347	85OP800334	SPRING,P5 (S)	
348	85OP800335	SPRING,BRAKE T (S)	
349	85OP800322	SPRING,TENSION	
350	85OP800336	SPRING,CAP BRAKE (S)	
351	85OP800342	SPRING,LOCKER (S)	
352	85OP800326	SPRING,LINK	
353	85OP800328	SPRING,DAMPER	
354	85OP800330	SPRING,RING	
355	85OP800337	SPRING,SS BRAKE (S)	
356	85OP900680	OPENER CASS	
357	85OP900731	CASS SIDE L	
358	85OP900732	CASS SIDE R	
359	85OP900728	TAPE GUIDE L(P,R)	
360	85OP900729	TAPE GUIDE R	
361	85OP800341	SPRING,P/R ARM	
362	85OP900688	LEVER,FLAP	
363	85OP900690	CASS HOLDER	
364	85OP600540	DRIVER,WORM	
365	85OP900713	LOCKER,R2	
366	85OP900694	SPRING,PACK	
367	85OP900695	BRACKET,TOP	
368	85OP900696	SPRING,CASS EARTH	
369	85OP000467	COVER,DECK	

REF. NO.	PART NO.	DESCRIPTION	
501	8107126A04	SCREW,TAP TITE(S) PAN	2.6x10
502	8107226804	SCREW,TAP TITE(S) PAN	2.6x10
503	8107226604	SCREW,TAP TITE(S) PAN	2.6x6
504	8109126604	SCREW,TAP TITE(B) PAN	2.6x6
505	810A126804	SCREW/WASHER(A)	M2.6x8
506	810B126404	SCREW/WASHER(B)	M2.6x4
507	8102120604	SCREW,PAN	M2x6
508	8102120304	SCREW,PAN	M2x3
509	8102130304	SCREW,PAN	M3.0x3.0
510	810A123504	SEMS A	M2.3x5.0
511	82P266005N	POLYSLIDER WASHER(CUT)	2.6x6.0xT0.5
512	82Q2647C5N	POLYSLIDER WASHER	2.6x4.7xT0.25
513	82P184505N	POLYSLIDER WASHER(CUT)	1.8x4.5xT0.5
514	83ETW30000	E-RING	3.0
515	810A126504	SCREW/WASHER(A)	M2.6x5
CP101	069R740018	CONNECTOR PCB SIDE	52044-0445
H5001	1523D91034	HEAD (AUDIO CONTROL)	HVMXA1072A
H5002	1543D02013	HEAD (FULL ERASE)	HVFHP0032A
⚠ M101	1596P78001	MOTOR (LOADING)	MXN13FB11H
⚠ M2001	1594J98008	CAPSTAN DD UNIT	EP15BC
M2003	1589V11007	MICRO MOTOR	EP14BD
PCB550	A4C831B550	DECK PCB ASS'Y	VE8851
Q101	0000700320	TRANSISTOR,PHOTO	RPT-38PB113
⚠ UN4001	A4D4A1B500	CYLINDER UNIT ASSY	A4D4A1B500

ELECTRICAL REPLACEMENT PARTS LIST

REF. NO.	PART NO.	DESCRIPTION		
		RESISTORS		
⚠ R503	R655U4010J	R, FUSE	1 OHM 1/4W	
⚠ R504	R3X181221J	R, METAL OXIDE	220 OHM 1W	
⚠ R505	R3X18A823J	R, METAL	82K OHM 2W	
R507	R3X1811R8J	R, METAL	1.8 OHM 1W	
⚠ R518	R3X181220J	R METAL OXIDE	22 OHM 1W	
⚠ R521	R65584221J	R, FUSE	220 OHM 1/4W	
		CAPACITORS		
⚠ C501	P2122B104M	CMP	0.1 UF 250V ECQUL	
⚠ C503	CB3LE0ML3M	CC	0.0033UF 250V	
⚠ C507	CB3930ML3M	CC	0.0033UF 250V	
C508	E02AFH680M	CE	68 UF 400V	
		DIODES		
D502	D1VT001330	DIODE, SILICON	1SS133T-77	
⚠ D503	D2LXE65800	DIODE, SILICON	1N4005E-6580-G23	
⚠ D504	D2LXE65800	DIODE, SILICON	1N4005E-6580-G23	
⚠ D505	D2LXE65800	DIODE, SILICON	1N4005E-6580-G23	
⚠ D506	D2LXE65800	DIODE, SILICON	1N4005E-6580-G23	
D507	D23TGP15D0	DIODE, SILICON	RGP15D-G23	
D508	D1VT001330	DIODE, SILICON	1SS133T-77	
D511	D2LTP10KE0	DIODE, SILICON	RGP10KE-G3	
D512	D97U06R21B	DIODE, SILICON	MTZJ6.2B T-77	or
	D92UA6R2B2	DIODE, ZENER	RD6.2ES AB2	
⚠ D513	D97U03301C	DIODE, ZENER	MTZJ33C T-77	
D514	D1VT001330	DIODE, SILICON	1SS133T-77	
D515	D1VT001330	DIODE, SILICON	1SS133T-77	
⚠ D516	D2LKB340L0	DIODE, SCHOTTKY	SB340L-6737	
D517	D23TPG06D0	DIODE, SILICON	RMPG06D-G3	
⚠ D518	D28T11ESN1	DIODE, SILICON	11ES1N-TA1B2	
D519	D1VT001330	DIODE, SILICON	1SS133T-77	
⚠ D521	D93T11601A	DIODE, ZENER	TMPG06-16A-G3	
⚠ D522	D97U04R71B	DIODE, ZENER	MTZJ4.7B T-77	
⚠ D523	D97U03001B	DIODE, ZENER	MTZJ30B T-77	
D524	D23TPG06D0	DIODE, SILICON	RMPG06D-G3	
D526	D28TQS04N0	DIODE, SCHOTTKY	11EQS04N-TA1B2	
D527	D97U01201B	DIODE, ZENER	MTZJ12B T-77	
D528	D2LFRGP30D	DIODE, RECTIFIER	RGP30DL-6801	
D529	D2LTGP15M0	DIODE, RECTIFIER	GP15M-G23	
D1001	D2LXE65800	DIODE, SILICON	1N4005E-6580-G23	
D1002	D93T11201A	DIODE, ZENER	TMPG06-12A-G3	
D1003	D2LXE65800	DIODE, SILICON	1N4005E-6580-G23	
D1004	D1VT001330	DIODE, SILICON	1SS133T-77	
D1005	0010600060	LED	SID1050CM	
D1006	D2LXE65800	DIODE, SILICON	1N4005E-6580-G23	
D1007	D1VT001330	DIODE, SILICON	1SS133T-77	
D1009	D2LXE65800	DIODE, SILICON	1N4005E-6580-G23	
D1010	D2LXE65800	DIODE, SILICON	1N4005E-6580-G23	
D4001	D1VT001330	DIODE, SILICON	1SS133T-77	
D4003	D97U06R81B	DIODE, ZENER	MTZJ6.8B T-77	or
	D97U06R21A	DIODE, ZENER	MTZJ6.2A T-77	or
	D97U06R21C	DIODE, ZENER	MTZJ6.2C T-77	
D4503	D97U01501B	DIODE, ZENER	MTZJ15B T-77	
D4505	D97U06R81B	DIODE, ZENER	MTZJ6.8B T-77	or
	D97U06R21A	DIODE, ZENER	MTZJ6.2A T-77	or
	D97U06R21C	DIODE, ZENER	MTZJ6.2C T-77	
		ICS		
⚠ IC501	I0Q90431L0	IC	NJM431L	
IC651	I07F529770	IC	BU2977FS	
⚠ IC1001	I07SQ69550	IC	BA6955N	
IC1002	I56F57051A	IC	OEC7051A	
IC1003	IC7J0311A0	IC	R3111N311A/C-TR	
IC1099	A4D938B015	IC	S-24C08ADPA-01	
IC4001	I04F38217F	IC	HA118217F	
IC4501	I03F071580	IC	LA7158M	
IC4502	I0QF021500	IC	NJM2150AM	
IC4801	I53F4775M0	IC	LC74775M	
IC5501	I0KF79605H	IC	TDA9605H	
IC6601	I0KFA9873H	IC	TDA9873H	
		TRANSISTORS		
⚠ Q501	TD3T007340	TRANSISTOR, SILICON	2SD734(E,F)-AA	or
	TC5T021204	TRANSISTOR, SILICON	2SC2120Y(TPE2)	
⚠ Q503	TC3U037520	TRANSISTOR, SILICON	2SC3752M/L-CB11	
⚠ Q504	0002500560	PHOTO COUPLER	TLP621(D4-GR-LF2	
Q505	TNYJA05001	COMPOUND TRANSISTOR	DTC143EKAT146	
⚠ Q506	TBWT009260	TRANSISTOR, SILICON	2SB926(S,T)-AA	or
	TAAT01273Y	TRANSISTOR, SILICON	KTA1273_Y	
Q511	TC5T018154	TRANSISTOR, SILICON	2SC1815Y(TPE2)	or
	TCATC31980	TRANSISTOR, SILICON	KTC3198-AT(Y,GR)	

REF. NO.	PART NO.	DESCRIPTION		
		TRANSISTORS		
⚠ Q512	TB3001201S	TRANSISTOR, SILICON	2SB1201S	
Q513	T8YJ2412K0	TRANSISTOR, SILICON	2SC2412KT146(R,S)	
Q651	T8YJ2412K0	TRANSISTOR, SILICON	2SC2412KT146(R,S)	
Q1001	0002M00570	PHOTO COUPLER	SG-260	
Q1002	0000100380	PHOTO TRANSISTOR	PNA2604M010R	
Q1003	0002M00570	PHOTO COUPLER	SG-260	
Q1004	TNYJC05001	COMPOUND TRANSISTOR	DTC124EKAT146	
Q1005	T8YJ2412K0	TRANSISTOR, SILICON	2SC2412KT146(R,S)	
Q1006	0002700530	PHOTO COUPLER	RPI-352Q01R	
Q1007	0002700530	PHOTO COUPLER	RPI-352Q01R	
Q1008	TNYJC05001	COMPOUND TRANSISTOR	DTC124EKAT146	
Q1009	TNYJC05001	COMPOUND TRANSISTOR	DTC124EKAT146	
Q4001	TD3T007340	TRANSISTOR, SILICON	2SD734(E,F)-AA	or
	TC5T021204	TRANSISTOR, SILICON	2SC2120Y(TPE2)	
Q4002	TD3T007340	TRANSISTOR, SILICON	2SD734(E,F)-AA	or
	TC5T021204	TRANSISTOR, SILICON	2SC2120Y(TPE2)	
Q4003	TNYJA05001	COMPOUND TRANSISTOR	DTC143EKAT146	
Q4004	TD3T007340	TRANSISTOR, SILICON	2SD734(E,F)-AA	or
	TC5T021204	TRANSISTOR, SILICON	2SC2120Y(TPE2)	
Q4005	TPYJC05001	COMPOUND TRANSISTOR	DTA124EKAT146	
Q4006	TC3T033310	TRANSISTOR, SILICON	2SC3331(S,T,U)-A	or
	TC5T018154	TRANSISTOR, SILICON	2SC1815Y(TPE2)	
Q4007	TC3T033310	TRANSISTOR, SILICON	2SC3331(S,T,U)-A	or
	TC5T018154	TRANSISTOR, SILICON	2SC1815Y(TPE2)	
Q4501	TNYJB05001	COMPOUND TRANSISTOR	DTC114EKAT146	
Q4801	T8YJ2412K0	TRANSISTOR, SILICON	2SC2412KT146(R,S)	
Q4802	T6YJ1037K0	TRANSISTOR, SILICON	2SA1037AKT146(R,S)	
		COILS &TRANSFORMER		
L501	021W7A220K	COIL	22 UH	or
	021W66220M	COIL, CHOKE	22 UH	
L502	021W7A220K	COIL	22 UH	or
	021W66220M	COIL, CHOKE	22 UH	
⚠ L503	029T000083	COIL, LINE FILTER	0R3A433F20	
L4001	0316160028	COIL, BIAS OSC	1616002	
L4002	02167F101J	COIL	100 UH	
L4003	02167F101J	COIL	100 UH	
L4004	02167F101J	COIL	100 UH	
L4005	02167F101J	COIL	100 UH	
L4006	0316160018	COIL, BIAS OSC	1616001	
L4007	021LA6271K	COIL	270 UH	
L4008	02167F101J	COIL	100 UH	
L4009	021LA6120K	COIL	12 UH	
L4010	021LA6221K	COIL	220 UH	
L4011	02167F101J	COIL	100 UH	
L4012	021LA6390K	COIL	39 UH	
L4013	02167F101J	COIL	100 UH	
L4502	02167F101J	COIL	100 UH	
L4511	021LA6100K	COIL	10 UH	
L4512	021LA6100K	COIL	10 UH	
L4513	021LA6100K	COIL	10 UH	
L4801	02167F101J	COIL	100 UH	
L4802	02167F101J	COIL	100 UH	
L4803	02167F101J	COIL	100 UH	
L4804	021LA6330K	COIL	33 UH	
L4805	021LA6220K	COIL	22 UH	
L4806	021LA6390K	COIL	39 UH	
L5501	02167F101J	COIL	100 UH	
L5502	02167F101J	COIL	100 UH	
L6001	02167F220J	COIL	22 UH	
L6002	02167F101J	COIL	100 UH	
⚠ T501	0481300029	TRANSFORMER, SWITCHING	8130002	
		JACKS		
J4501	063G100041	SOCKET, 21PIN	035_0_8083_00	
J4502	0602411008	RCA, JACK	JPJ1195-010320	
J4503	0607431012	JACK, RCA 3.5	LPR1251-0500	
		SWITCHES		
SW601	0504201T32	SWITCH, TACT	SKQNAED010	
SW602	0504201T32	SWITCH, TACT	SKQNAED010	
SW603	0504201T32	SWITCH, TACT	SKQNAED010	
SW604	0504201T32	SWITCH, TACT	SKQNAED010	
SW605	0504201T32	SWITCH, TACT	SKQNAED010	
SW606	0504201T32	SWITCH, TACT	SKQNAED010	
SW607	0504201T32	SWITCH, TACT	SKQNAED010	
SW608	0504201T32	SWITCH, TACT	SKQNAED010	
SW1001	0508221001	SWITCH (LEAF)	SPVF130100	
		P.C.BOARD ASSEMBLIES		
PCB010	A4D950B01A	PCB ASS'Y	VMX179C	

ELECTRICAL REPLACEMENT PARTS LIST

REF. NO.	PART NO.	DESCRIPTION		
		P.C.BOARD ASSEMBLIES		
PCB270	A4D918B27A	PCB ASS'Y	VE8837B	
PCB550	A4C831B550	SEE CHASSIS REPLACEMENT PARTS LIST		
		MISCELLANEOUS		
B501	024AT03655	CORE, BEADS	BL01RN1-A63T6	
B502	024AT03655	CORE, BEADS	BL01RN1-A63T6	
BT601	1412004008	BATTERY, MANGAN	R03(AB)E_20_T	
⚠ CD501	1206655816	CORD, AC	06655816	
CD651	122F040904	CORD, JUMPER	2F040904	
CP501	069X320409	CORD, UX CONNECTOR	B2P3-VH	
CP601	069J740019	CONNECTOR PCB SIDE	IMSA-9604S-04Z13	
CP651	069J740029	CONNECTOR PCB SIDE	IMSA-9604S-04Z14	
CD1001	122F040904	CORD, JUMPER	2F040904	
CD1006	122F061501	CORD, JUMPER	2F061501	
CD4102	122F051702	CORD, JUMPER	2F051702	
CD6002	06CDL02002	RF, CABLE PAL FTZ	CDL02002	
CP1001	069J740029	CONNECTOR PCB SIDE	IMSA-9604S-04Z14	
CP1002	069J750029	CONNECTOR PCB SIDE	IMSA-9604S-05Z14	
CP1003	0697280590	CONNECTOR PCB SIDE	TMC-J08P-B1	
CP4001	0697290620	CONNECTOR PCB SIDE	TOC-C09X-A1	
CP4002	069J760029	CONNECTOR PCB SIDE	IMSA-9604S-06Z14	
CP4003	0697120320	CONNECTOR PCB SIDE	TMC-T02X-E1	
CUS011	800WF00019	CUSHION-C		
CUS012	800WF00004	CUSHION-A		
⚠ F501	080PT1R602	FUSE	21801.6	
FH501	06710T0006	HOLDER,FUSE	EYF-52BC	
FH502	06710T0006	HOLDER,FUSE	EYF-52BC	
OS651	077Q000018	REMOTE RECEIVER	PIC26043LO	
TM601	07660DK030	TRANSMITTER	SBHR00503A	
⚠ TU6001	0162K01024	RF, UNIT	TCMB0601PD11D	or
	0162601021	RF, UNIT	TMDG2-603A	
V651	096779R005	TUBE FLUORSCENT DISPL	7-MT-201GA	
X1001	100CT01207	CRYSTAL HC-49/U-S	12MHz	
X1002	100DA32R01	CRYSTAL DT-26	32.768KHz	
X4001	100CT4R407	CRYSTAL HC-49/U	4.433619MHz	
X6602	100CT4R009	CRYSTAL HC-49/U	4MHz	

RESISTOR

RC..... CARBON RESISTOR

CAPACITORS

CC..... CERAMIC CAPACITOR
CE..... ALUMI ELECTROLYTIC CAPACITOR
CP..... POLYESTER CAPACITOR
CPP..... POLYPROPYLENE CAPACITOR
CPL..... PLASTIC CAPACITOR
CMP..... METAL POLYESTER CAPACITOR
CMPL..... METAL PLASTIC CAPACITOR
CMPP..... METAL POLYPROPYLENE CAPACITOR

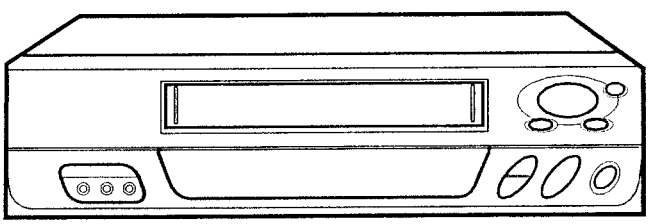
SPEC.NO.	M4D9-50B
O/R NO.	U094510

TEVION®

MD9025 SILVER

SERVICE MANUAL

VIDEO CASSETTE RECORDER



VHS
PAL

SUPPLEMENT
CHASSIS CODE A

This SUPPLEMENT must be used together SERVICE MANUAL for MD9025.
All other test and repair procedures are as shown in the ORIGINAL MANUAL.
Please file this SUPPLEMENT with the ORIGINAL VERSIONS.

ELECTRICAL REPLACEMENT PARTS LIST

REF. NO.	MD9025		MD9025 SILVER	
	PART NO.	DESCRIPTION	PART NO.	DESCRIPTION
TM601	07660DK030	TRANSMITTER SBHR00503A	07660DK040	TRANSMITTER SBHR00504A

MECHANICAL REPLACEMENT PARTS LIST

REF. NO.	MD9025		MD9025 SILVER	
	PART NO.	DESCRIPTION	PART NO.	DESCRIPTION
601	A4D950B720	CABINET, FRONT ASS'Y	A4D953B720	CABINET, FRONT ASS'Y
602	701WPJB053	CABINET, FRONT	701WPJB080	CABINET, FRONT
604	712WPJA772	FLAP	712WPJA793	FLAP
606	735WPJA038	BUTTON, DECK (A)	735WPJA280	BUTTON, DECK (A)
607	735WPJA039	BUTTON, DECK (B)	735WPJA281	BUTTON, DECK (B)
609	702WSBA014	CABINET, TOP	702WSBA025	CABINET, TOP

SPEC.NO.	M4D9-53B
O/R NO.	U0X4542